OCTOBER 17, 1936

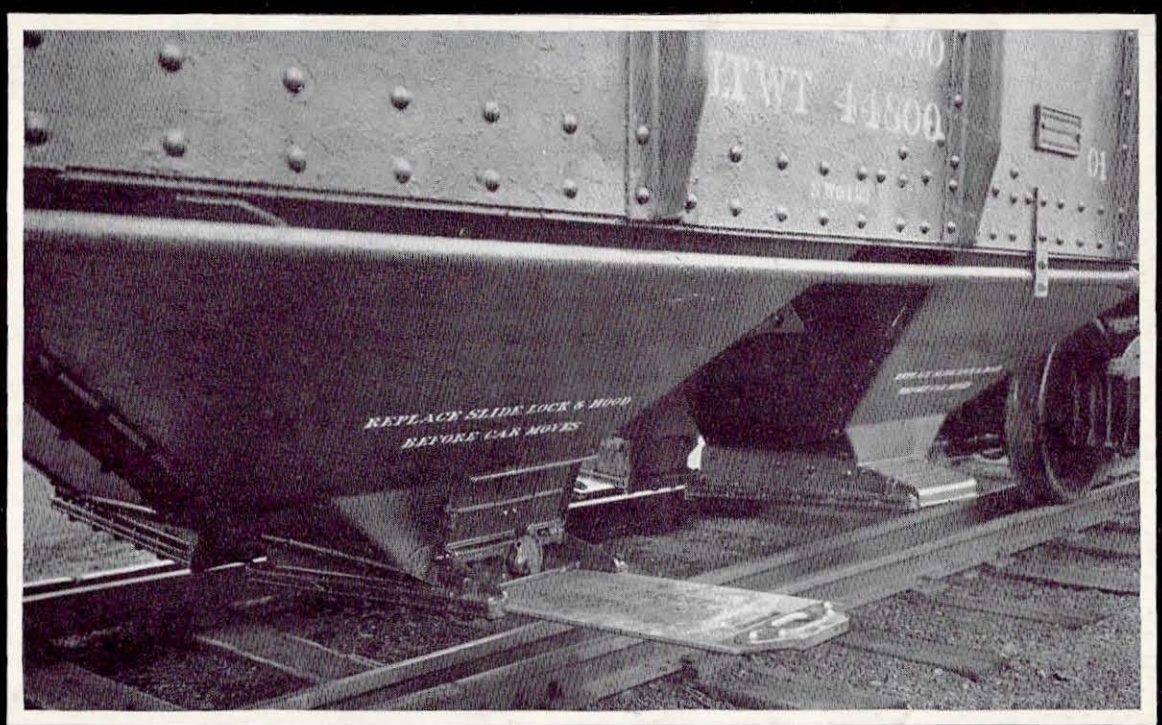
Railway Age

Founded in 1856

MCCARTNEY LIBRARY
GENEVA COLLEGE

WINE DISCHARGE GATES

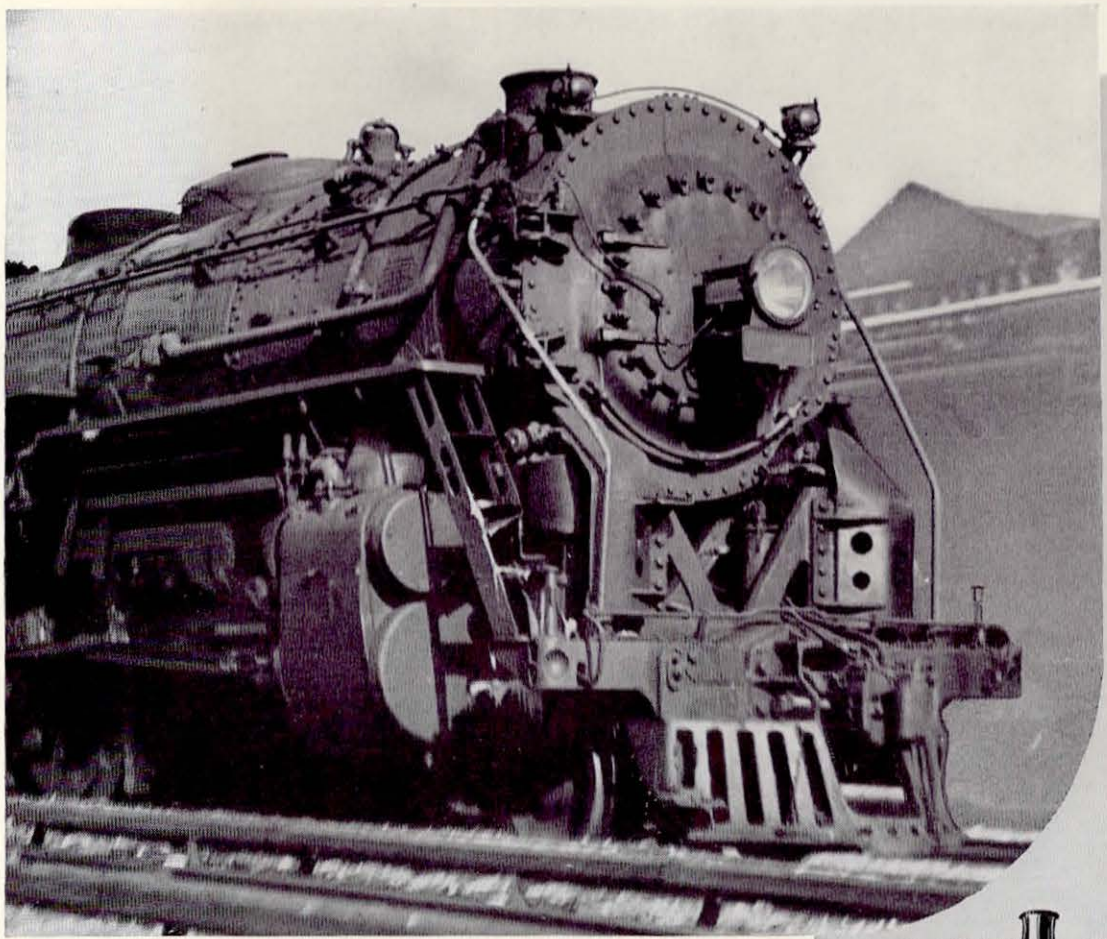
WEATHER TIGHT
AND
SIMPLE TO OPERATE



A PROVEN DEVICE
FOR HANDLING
DRY LADING COMMODITIES

THE WINE RAILWAY APPLIANCE CO. TOLEDO, OHIO.

OXWELD REPAIRS on cylinders *restore* locomotives to service *promptly*



OXY-ACETYLENE welding of locomotive cylinders under Oxweld Railroad Service procedures is resulting in profits for the railroads. It shortens shop delays and restores damaged locomotives to service at low cost.

Welds in either cast-iron or cast-steel cylinders can be made by oxy-acetylene welding. Special Oxweld welding rods and welding apparatus, together with Oxweld supervision which follows closely at every step of the work, insure the high quality performance of welded cylinders.

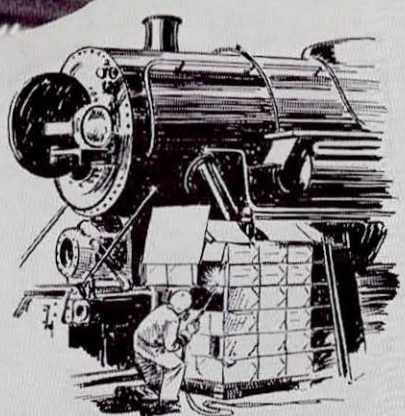
Oxweld Railroad Service brings to railroad shops the advantages of a most unique coordination of scientific research with manufacturing and service facilities. Through these benefits for almost a quarter of a century The Oxweld Railroad Service Company has served the welding and cutting needs of a majority of the Class I railroads.

THE OXWELD RAILROAD SERVICE COMPANY

Unit of Union Carbide and Carbon Corporation

UCC

New York: Carbide and Carbon Bldg. Chicago: Carbide and Carbon Bldg.

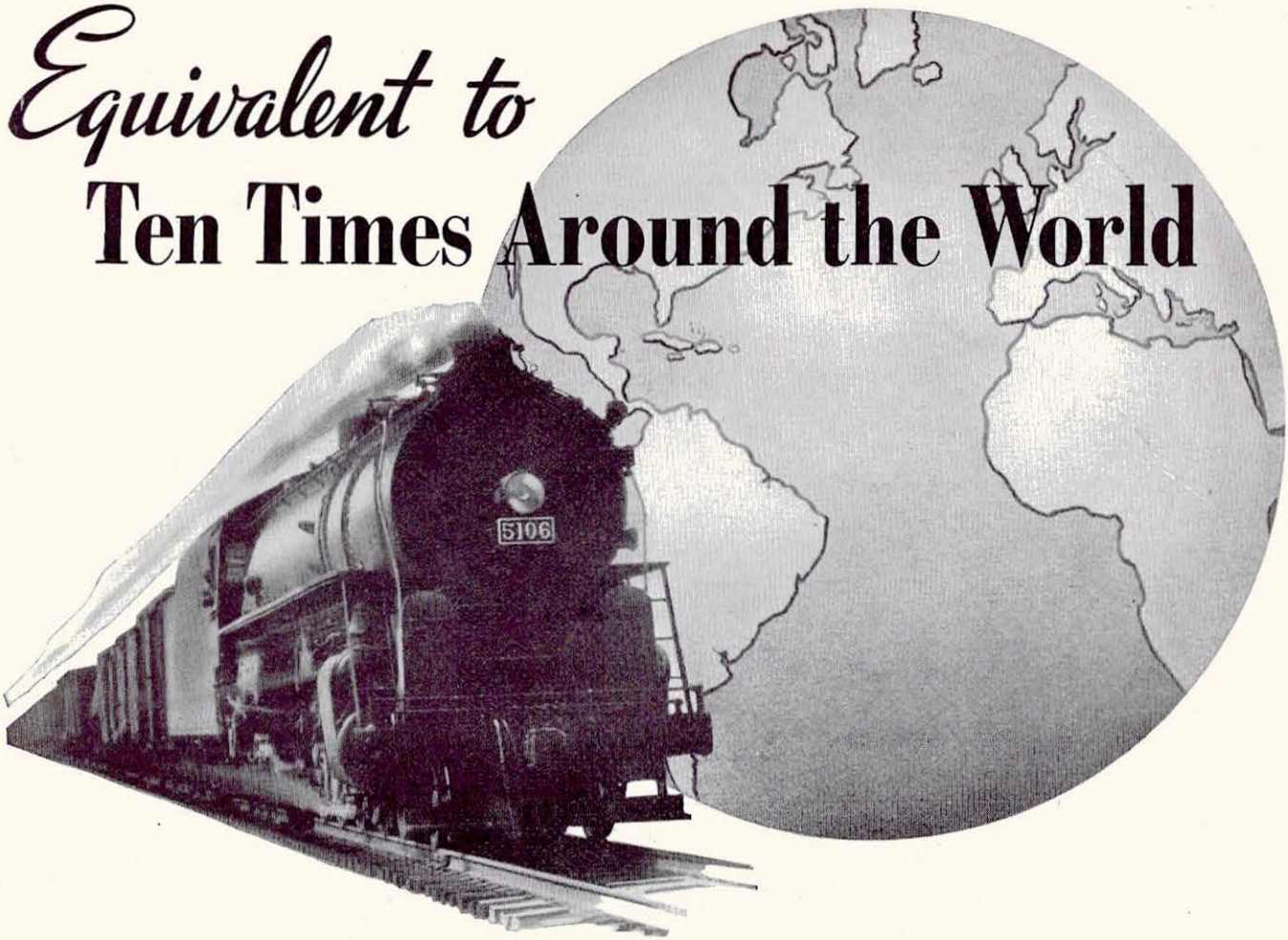


Repairing a broken locomotive cylinder by the Oxweld process makes the cylinder like new.

OXWELD RAILROAD SERVICE

Published weekly by Simmons-Boardman Publishing Company, 1309 Noble Street, Philadelphia, Pa. Entered as second class matter January 4, 1933, at the Post Office at Philadelphia, Pa., under the Act of March 3, 1879.

Equivalent to Ten Times Around the World



Without Boiler Repairs

Result of Bethlehem's handling of a boiler and firebox plate job

When the Lehigh Valley Railroad ordered two locomotives with boiler and firebox elements of Bethlehem Nickel-Steel Plate a few years ago, it was somewhat of an experiment. Such impressive economies, however, were obtained with the first two locomotives that twenty-five additional units have since been built and put into service. The nickel-steel boiler and firebox plates occupied an important place among the refinements in design that resulted in an annual return of approximately 38 per cent on the investment. All of these plates were rolled by Bethlehem.

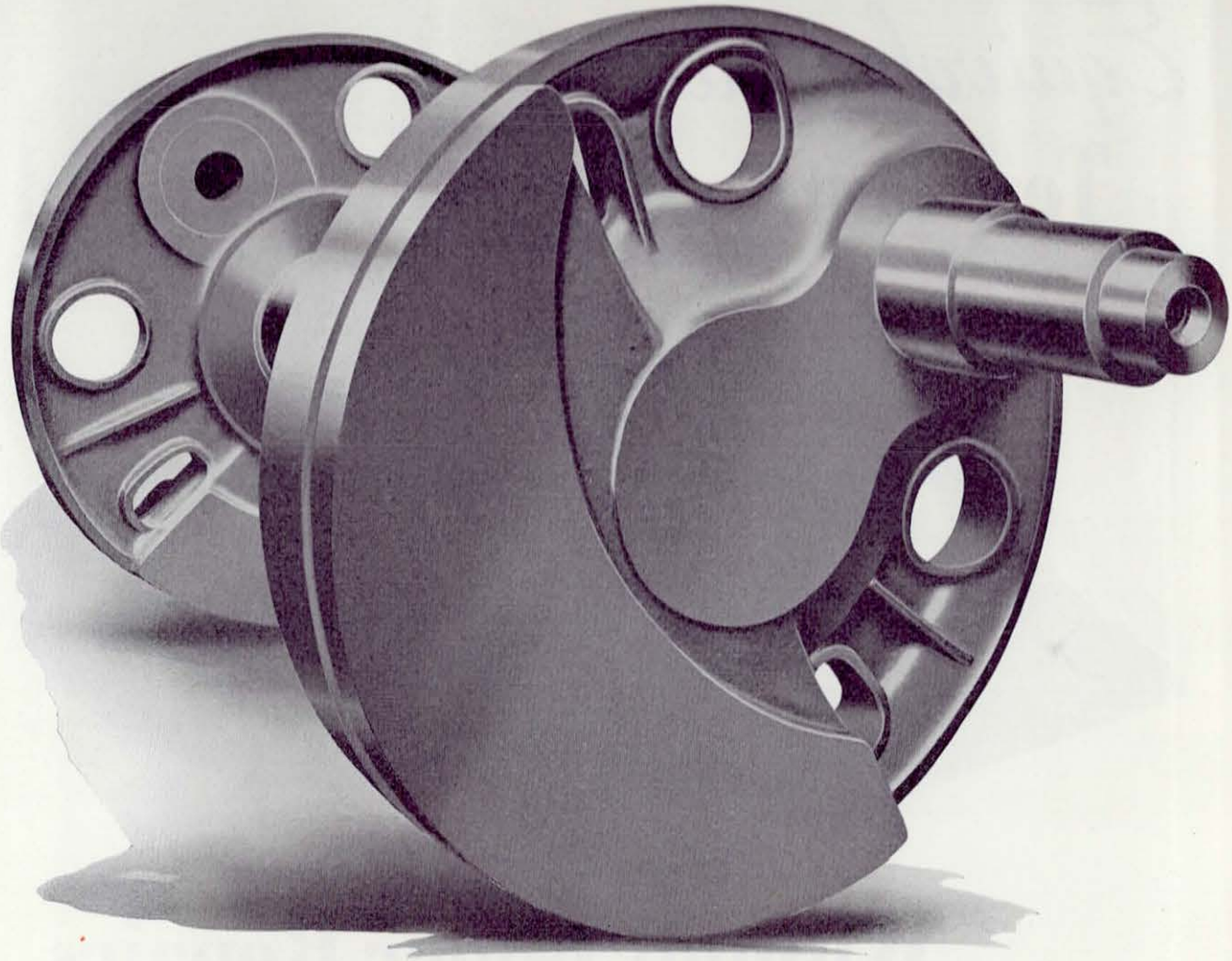
One of these twenty-seven locomotives has covered more than 257,000 miles—more than ten times the circumference of the world—without need for even minor repairs to either boiler or firebox. Records to date on all twenty-seven engines show promise of equally impressive results.

Performances like this are indicative of the results obtainable with Bethlehem Nickel-Steel Plates—even when the plate is subjected to severe stress due to the constant pounding and vibration of locomotive boiler service. They are effecting equally decided economies and operating improvements in many other fields of industry where their successful application has earned widespread approval.

Nickel-Steel Plates—like those supplied the Lehigh Valley Railroad—are but one of the many types of quality plates for special purposes produced by Bethlehem. They supplement the wide range of carbon steel plates which Bethlehem has been supplying to all branches of industry for many years. After careful study of specific problems, Bethlehem metallurgists gladly cooperate with users in recommending the most suitable grade of special or carbon steel plate to meet the requirements of the intended service.

BETHLEHEM STEEL COMPANY

BETHLEHEM STEEL



What your low-wheeled engine needs

BALDWIN DISC WHEELS

A lighter stronger wheel center for application to new and existing locomotives, made of Standard Steel Works' Special "Double Anchor" High Tensile Steel.

They permit better counterbalance and thus prevent destructive pounding on the rail — improve the riding qualities of the locomotive to which they are applied — lower the costs of locomotive and track maintenance.

THE BALDWIN LOCOMOTIVE

The BALDWIN DISC WHEEL is rapidly being recognized as the best answer to the need for an improved driving wheel center.

Since these wheels were put on the market in March, 1936, the following railroads have purchased them for application to new power or for improving the operation of existing low-wheeled engines.

Seaboard Air Line
Central of Georgia
Chicago Great Western
St. Louis Southwestern
Union Railway
Bessemer and Lake Erie
Richmond, Fredericksburg and Potomac
Atchison, Topeka and Santa Fe
Boston and Maine

The tabulation below is an actual example of improvement in dynamic augment made for one of our customers by substituting BALDWIN DISC WHEELS for conventional wheels of 63-inch outside diameter.

M.P.H.	DYNAMIC AUGMENT (lb.)	
	Spoke wheel	DISC WHEEL
10	1,000	**347**
20	4,000	**1,380**
30	9,000	**3,120**
40	16,000	**5,540**
50	25,000	**8,650**
60	36,000	**12,500**

WORKS • • • PHILADELPHIA

FOOTBALL DAYS TELL THE SUMMER'S STORY

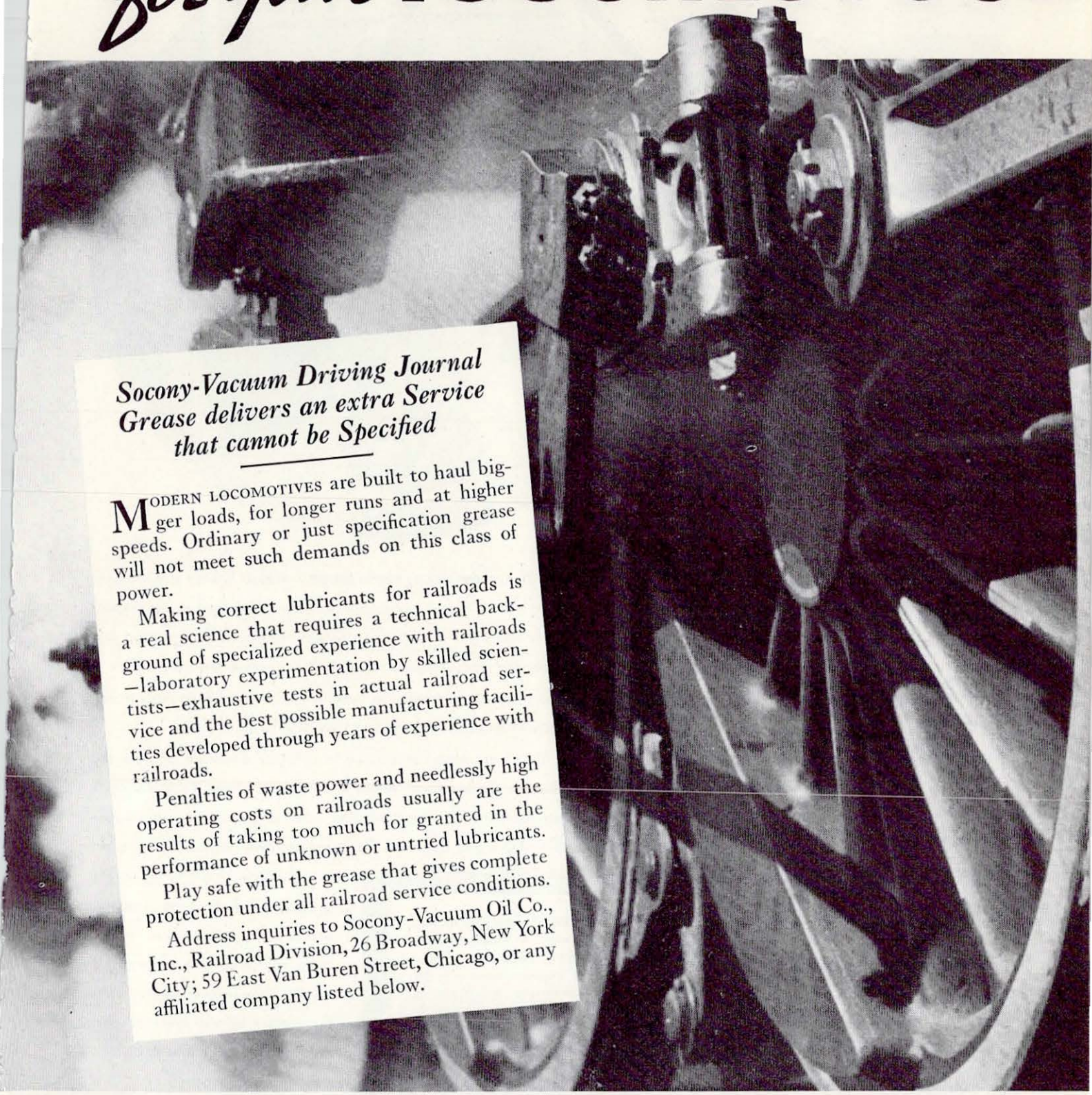
It has been a hard-working summer for storage batteries. They have all traveled extra miles and the weather extremes have been harsh. But now, with football days and cooler weather, you can take the score.

You will find that of all the batteries which "winked out" without warning, there are practically no Edison Steel-Alkaline Batteries among them. The performance of the Edison is predictable—it thrives on hard work—helps you maintain the road's record for good service even under the most difficult conditions. Because it lives 2 to 5 times as long and costs less to maintain, the Edison makes the most satisfactory and economical railroad battery.

EDISON STORAGE BATTERY

DIVISION OF THOMAS A. EDISON, INC., WEST ORANGE, NEW JERSEY

A Grease for Your TOUGHEST JOB



Socony-Vacuum Driving Journal Grease delivers an extra Service that cannot be Specified

MODERN LOCOMOTIVES are built to haul bigger loads, for longer runs and at higher speeds. Ordinary or just specification grease will not meet such demands on this class of power.

Making correct lubricants for railroads is a real science that requires a technical background of specialized experience with railroads —laboratory experimentation by skilled scientists—exhaustive tests in actual railroad service and the best possible manufacturing facilities developed through years of experience with railroads.

Penalties of waste power and needlessly high operating costs on railroads usually are the results of taking too much for granted in the performance of unknown or untried lubricants.

Play safe with the grease that gives complete protection under all railroad service conditions.

Address inquiries to Socony-Vacuum Oil Co., Inc., Railroad Division, 26 Broadway, New York City; 59 East Van Buren Street, Chicago, or any affiliated company listed below.

GARGOYLE Lubricants

SOCONY-VACUUM OIL CO.

INCORPORATED

STANDARD OIL OF NEW YORK DIVISION · WHITE STAR DIVISION · LUBRITE DIVISION · WHITE EAGLE DIVISION
WADHAMS OIL COMPANY · MAGNOLIA PETROLEUM COMPANY · GENERAL PETROLEUM CORPORATION OF CALIFORNIA

LET US EAT LETTUCE IN JANUARY

● That backbone of salads—crisp, green lettuce—would always grow where rain and sunshine fell on warm earth. But northern cities had to be content with local crops for the short summer months, until railroads inaugurated fast refrigerator car service from America's famous year round lettuce fields.

Now every month is lettuce month. In June or in January this famous green vegetable is ready to garnish the table of rich man or poor man.

Development of refrigerator car service is but one example of how the railroads have bulwarked the food needs of American homes. Of the several fundamental requirements for such service, one is good insulation. The American Hair & Felt Co. and Dry Zero Corporation have helped the railroad car designers solve insulation problems in every type of refrigerator car now in service. In fact, these affiliated companies have supplied the insulating materials for almost all refrigerator cars now in service for American and Canadian railroads.

HAIRINSUL— Standard refrigerator car insulation.

DRY-ZERO—The most efficient and lightest weight low temperature insulation known —standard for low temperature cars.

SALAMANDER— For over 30 years the standard insulation for passenger cars.

LIGHT-WEIGHT SALAMANDER— For insulating light-weight, high speed passenger cars.

CARINSUL— Made especially for insulating the letter board of passenger cars.

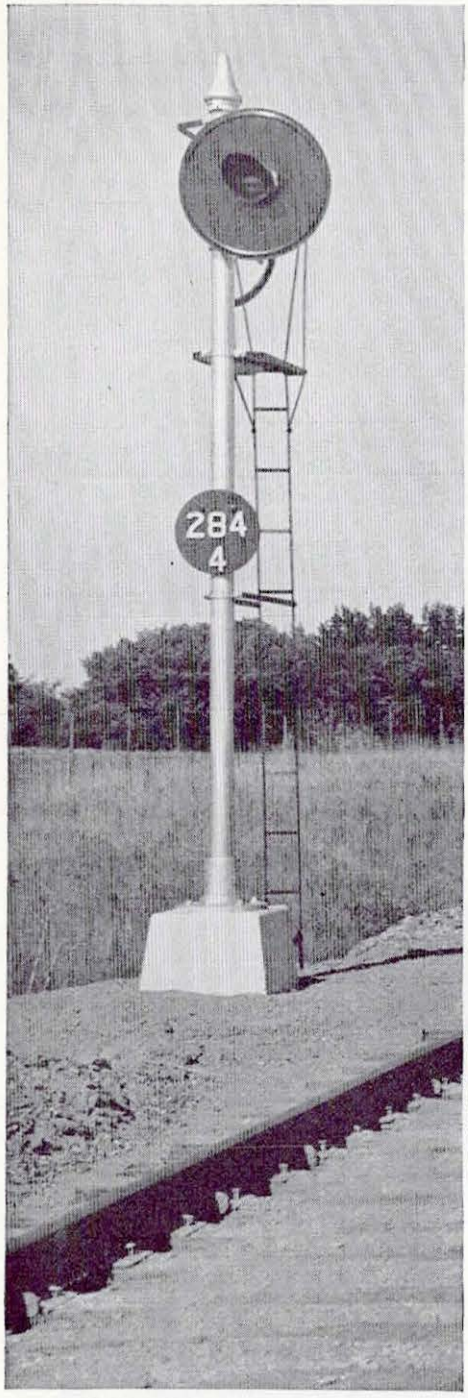
OZITE STANDARD HAIR FELT— Made by the genuine original platen or felted process and universally recognized as the highest standard of felted insulation.

LIGHT-WEIGHT AIR CONDITIONING HAIR FELT— For insulating air ducts.

DRY-ZERO ECONOMY ICE BLANKET —For reducing ice meltage on platforms and in transit.

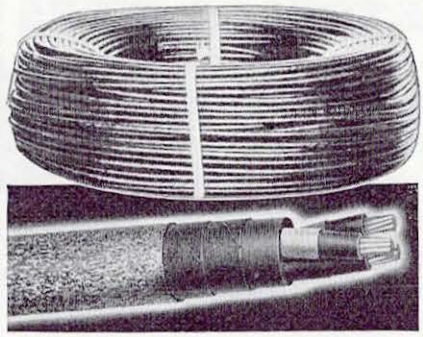
AMERICAN HAIR & FELT COMPANY • DRY ZERO CORPORATION
(Railroad Division)
Merchandise Mart Chicago

The Right Wires and Cables *for* Your Needs

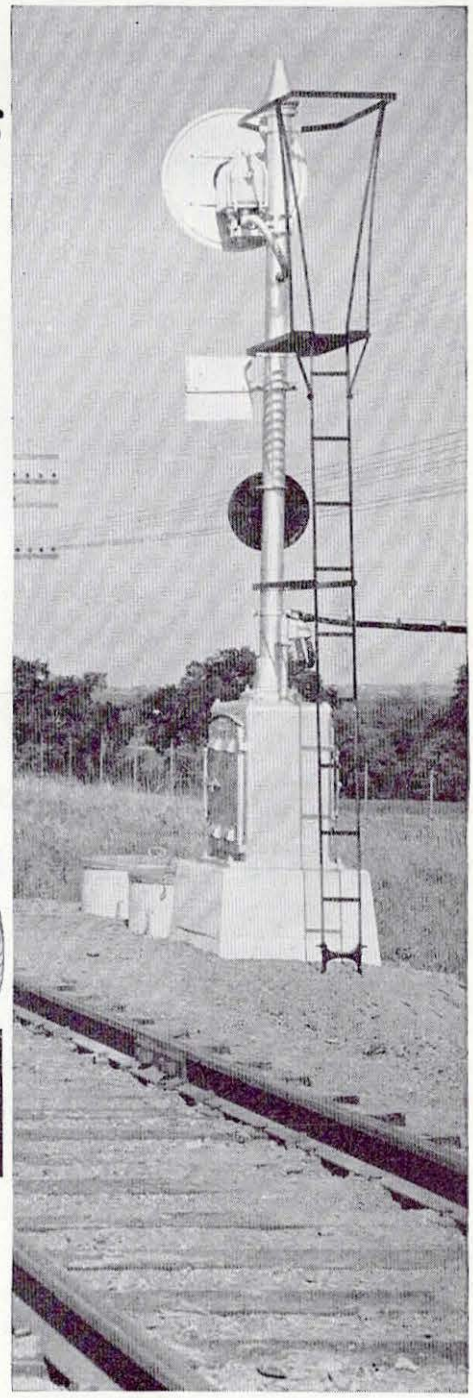


THE railroads are moving faster than ever before . . . loads are being increased, equipment remodeled to meet more modern demands. All of this has placed greater responsibility on signal and power circuits. The safety and efficiency of railroad trains and schedules are dependent in a great measure on Electrical Wires, Cables and Rail Bonds.

Our engineers are keeping pace with railroad progress. They have had a wide range of experience in working out wire problems and can be of great assistance to you. We suggest that you look into our facilities for serving you before placing future orders.



Rubber Covered Wires · Signal Wires · Locomotive Headlight Wires · Parkway Cables · Reliance U R C Weatherproof Wires · Bare Copper Wires · Tigerweld Power and Signal Bonds · Perfected Telephone · Telegraph Wire and Strand · Tie Wires · Bond Wires · Aerial Cables · Trolley Wires



ELECTRICAL WIRES *and* CABLES

AMERICAN STEEL & WIRE COMPANY

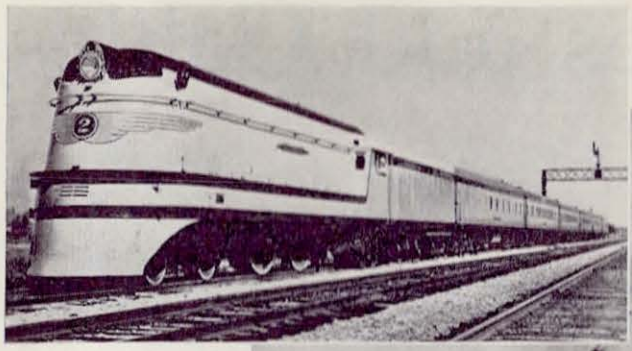
208 South La Salle Street, Chicago

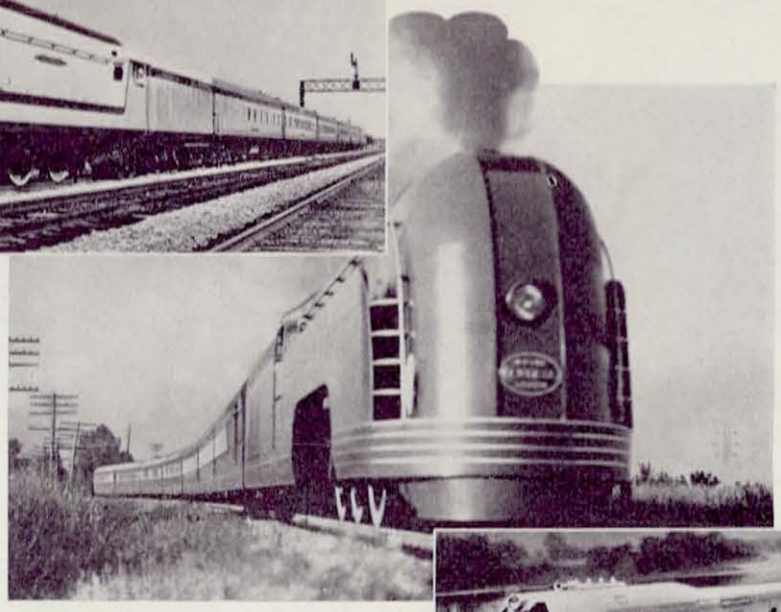
Empire State Building, New York

Columbia Steel Company, San Francisco, *Pacific Coast Distributors*

United States Steel Products Company, New York, *Export Distributors*

UNITED STATES STEEL





REPUBLIC RUBBER

ADDS A FINAL TOUCH OF COMFORT TO STREAMLINERS

● Like walking on air! These highly resilient rubber flooring materials keep pace with the streamliners for improvement in design. They not only air-cushion the floor, giving a delightful sensation of underfoot comfort, but also deaden sound and absorb vibration. They are sanitary, odorless and proof against moth and vermin. Their long service life provides a new economy in passenger car maintenance.

The HIAWATHA, MERCURY, ZEPHYR, THE 400, and REBEL are just a few of the trains equipped with these improvements for passenger comfort. Republic Engineers keep pace with up-to-date needs. Write us for detailed information.

PNEU-TILE

For complete car floors and vestibules, also bar and table tops. Attractive designs in various colors. Long lasting, solid rubber top face stock, on an air cushioned, sponge base.

PNEU-PAD

A strongly reenforced sponge rubber carpet pad that will not stretch, mat down or absorb dirt. Greatly increases the life of carpets.

THE REPUBLIC RUBBER CO.

YOUNGSTOWN, OHIO

◆

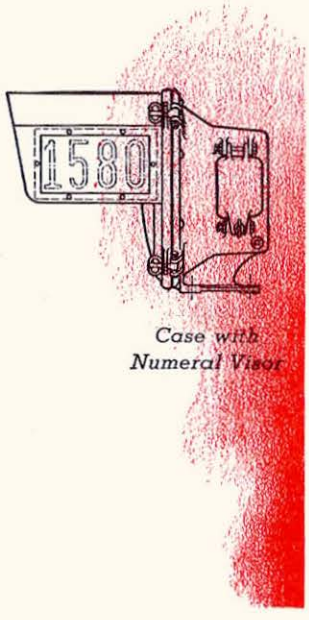
Representatives

MIDGLEY & BORROWDALE

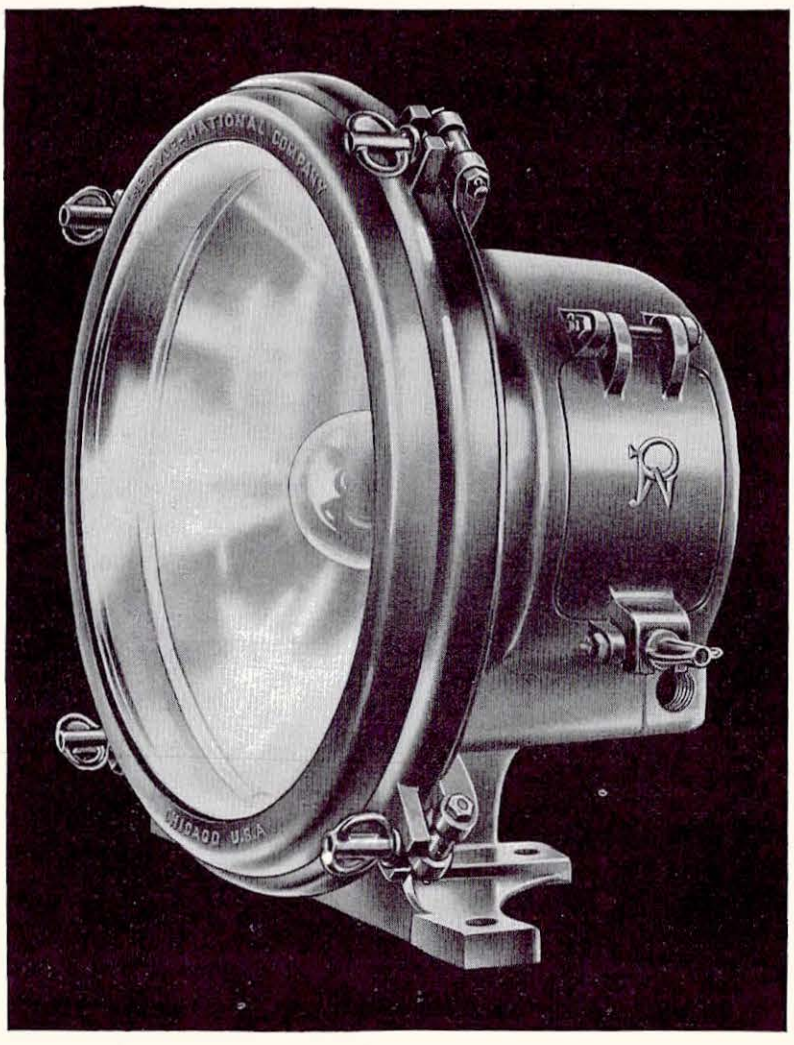
8 South Michigan Avenue, Chicago, Illinois

ENGINE HEADLIGHTING

DESIGNED FOR SWITCH



Case with Numeral Visor



THE new Type C-14055 headlight case is proving itself ideally suited to the severe service on switch engines. The cast metal case is generously proportioned for strength, yet measures only 11⅛ inches from front to back. A wide angle beam is provided by the specially designed reflector, giving the ample illumination over adjacent tracks needed for switching service.

This case has the Pyle-National edge-mounted reflector, preventing reflector breakage. Doors close on soft packing, insuring tight, weatherproof closing.

Type C-14055 is available in cast iron or cast aluminum alloy, with glass or alzac metal reflector, and for either base or back mounting, and with or without standard or numeral visor.

PYLE-NATIONAL

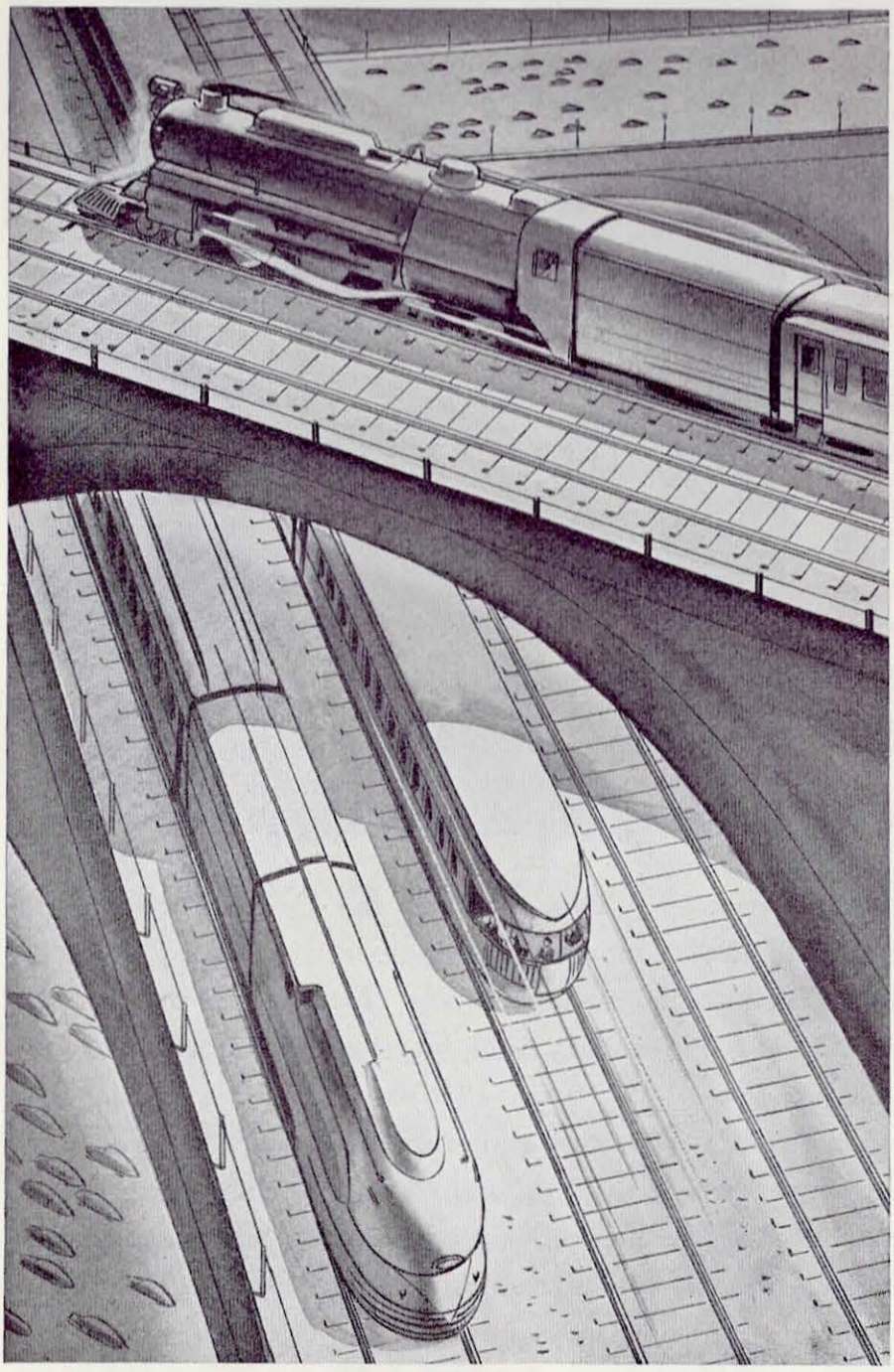
HEADLIGHTS • TURBO-GENERATORS • CONDUIT FITTINGS

The Pyle-National Company, 1334-58 North Kostner Avenue, Chicago, Ill.
Offices: New York, Baltimore, Pittsburgh, St. Louis, St. Paul, San Francisco • *Export Department:* International Railway Supply Co., New York • *Canadian Agents:* The Holden Co., Ltd.

RECOGNIZED LEADERSHIP • WIDEST EXPERIENCE • FOR OVER 38 YEARS

Today's finer, faster trains deserve today's finest pipe

NATIONAL SEAMLESS



THE rigors of modern railroading demand an increased factor of safety in every product that goes into this important equipment. In piping it calls for the strength, the safety in service that only NATIONAL Seamless can assure. Pierced from solid steel, this superior pipe is uniformly high in wall strength both transversely and longitudinally. There are no welds—no long line of possible weakness — to fail during installation or when the going gets tough.

Ductility to the highest degree is a distinguishing feature of NATIONAL Seamless — its unusual bending and flanging properties make it readily applicable to steam, water and air lines. The judgment of progressive railroad engineers who have turned to this product for superior performance has been amply justified by the service records and lower maintenance cost these installations have shown.

When you modernize your equipment—modernize the pipe lines that serve it; take no chances, use NATIONAL Seamless . . . it means maximum security.

NATIONAL TUBE COMPANY

PITTSBURGH, PA.

Columbia Steel Company, San Francisco, *Pacific Coast Distributors* · United States Steel Products Company, New York, *Export Distributors*

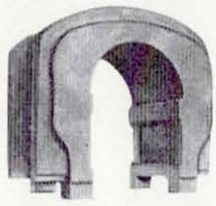
UNITED STATES STEEL

HYLASTIC

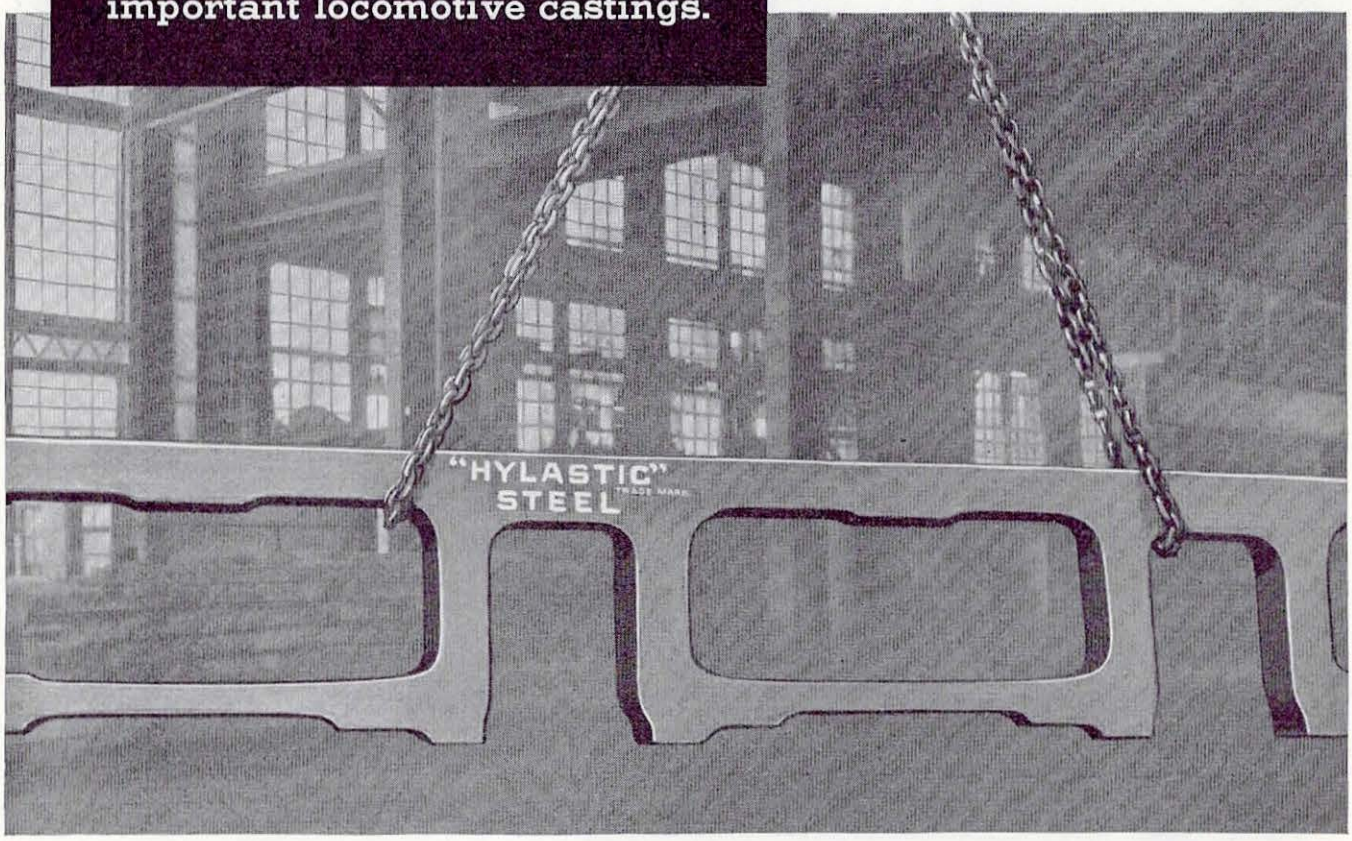
REG. U. S. PAT. OFF.

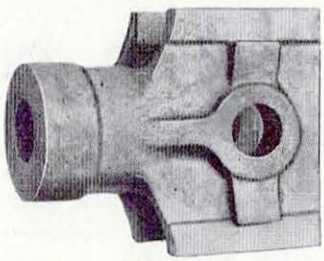
American Steel Foundries
High Tensile Cast Steel

The toughness and shock resisting qualities of "HYLASTIC" Steel is inherent; it defies sudden fracture. "HYLASTIC" Steel is the strongest and longest lasting material for all important locomotive castings.



LOCOMOTIVE DRIVING BOX





LOCOMOTIVE CROSS HEAD

AMERICAN STEEL FOUNDRIES

NEW YORK CHICAGO ST. LOUIS

SIT IN *Any* AIR CONDITIONED CAR

Sit there — appreciate the comfort it brings you — winter or summer. Then realize that the producers of air conditioning equipment for the railroads use Bantam Needle Roller Bearings on their equipment.

It gives us pleasure to serve these suppliers to the railroads. Bantam has equal facilities available to help operators solve difficult bearing problems for many other railroad requirements.

We shall welcome a letter from you telling us your problems or inviting our representative to call when in your vicinity.

THE BANTAM BALL BEARING CO

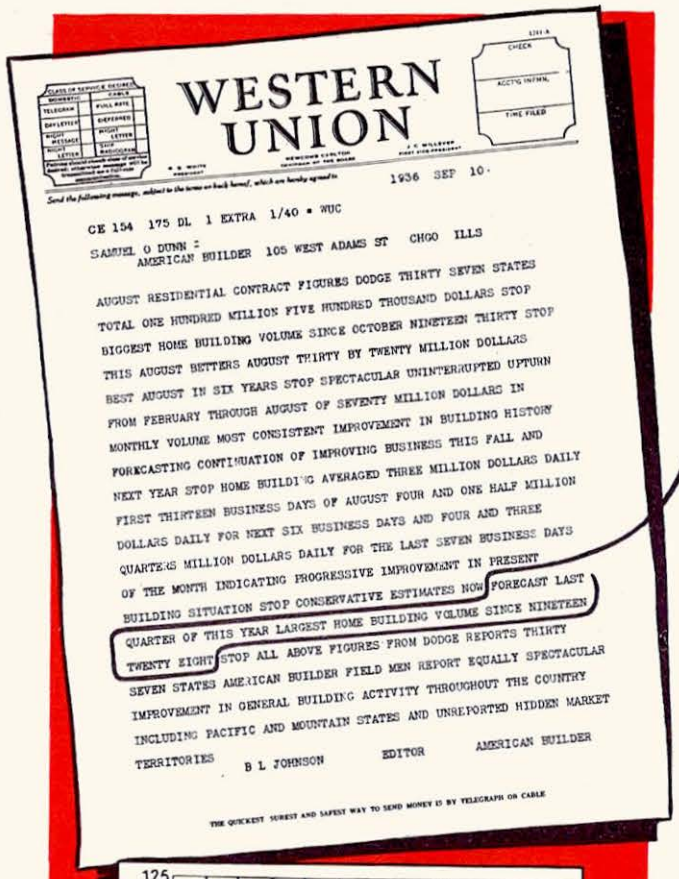
(SUBSIDIARY OF THE TORRINGTON CO.)

SOUTH BEND, INDIANA

CHICAGO, PHILADELPHIA, TOLEDO, CLEVELAND, PITTSBURGH, WASHINGTON, D. C., DETROIT, MILWAUKEE, NEW YORK, ROCHESTER, N. Y., HARTFORD, NEW ORLEANS, SEATTLE, INDIANAPOLIS

In Canada DOMINION ENGINEERING WORKS, LIMITED, MONTREAL

TAKE YOUR TOUGHEST BEARING JOB TO BANTAM



WESTERN UNION

1936 SEP 10.

CE 154 175 DL 1 EXTRA 1/40 • WUC

SAMUEL O DUNN :
AMERICAN BUILDER 105 WEST ADAMS ST CHGO ILLS

AUGUST RESIDENTIAL CONTRACT FIGURES DODGE THIRTY SEVEN STATES TOTAL ONE HUNDRED MILLION FIVE HUNDRED THOUSAND DOLLARS STOP BIGGEST HOME BUILDING VOLUME SINCE OCTOBER NINETEEN THIRTY STOP THIS AUGUST BETTERS AUGUST THIRTY BY TWENTY MILLION DOLLARS BEST AUGUST IN SIX YEARS STOP SPECTACULAR UNINTERRUPTED UPTURN FROM FEBRUARY THROUGH AUGUST OF SEVENTY MILLION DOLLARS IN MONTHLY VOLUME MOST CONSISTENT IMPROVEMENT IN BUILDING HISTORY FORECASTING CONTINUATION OF IMPROVING BUSINESS THIS FALL AND NEXT YEAR STOP HOME BUILDING AVERAGED THREE MILLION DOLLARS DAILY FIRST THIRTEEN BUSINESS DAYS OF AUGUST FOUR AND ONE HALF MILLION DOLLARS DAILY FOR NEXT SIX BUSINESS DAYS AND FOUR AND THREE QUARTERS MILLION DOLLARS DAILY FOR THE LAST SEVEN BUSINESS DAYS OF THE MONTH INDICATING PROGRESSIVE IMPROVEMENT IN PRESENT BUILDING SITUATION STOP CONSERVATIVE ESTIMATES NOW FORECAST LAST QUARTER OF THIS YEAR LARGEST HOME BUILDING VOLUME SINCE NINETEEN TWENTY EIGHT STOP ALL ABOVE FIGURES FROM DODGE REPORTS THIRTY SEVEN STATES AMERICAN BUILDER FIELD MEN REPORT EQUALLY SPECTACULAR IMPROVEMENT IN GENERAL BUILDING ACTIVITY THROUGHOUT THE COUNTRY INCLUDING PACIFIC AND MOUNTAIN STATES AND UNREPORTED HIDDEN MARKET TERRITORIES

B L JOHNSON EDITOR AMERICAN BUILDER

THE QUICKEST SUREST AND SAFEST WAY TO SEND MONEY IS BY TELEGRAPH OR CABLE

PEAKS *and* VALLEYS

FORECAST LAST QUARTER OF THIS YEAR

LARGEST HOME BUILDING VOLUME SINCE

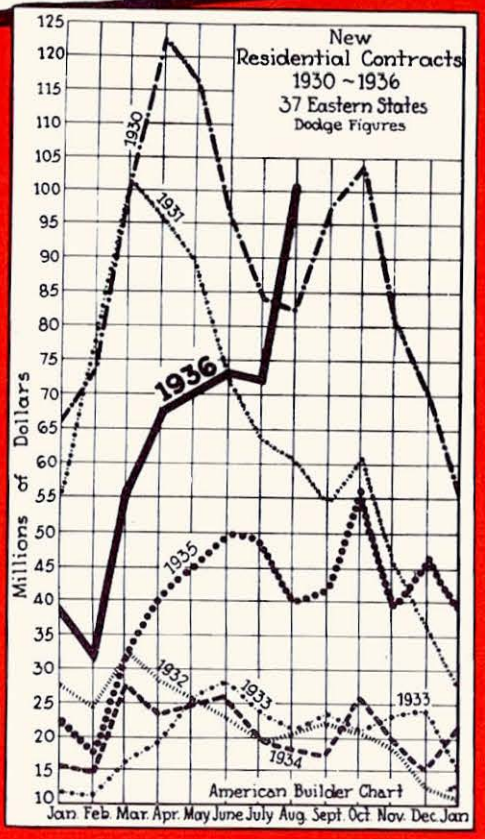
NINETEEN TWENTY-EIGHT

—Building industry rising to a new peak

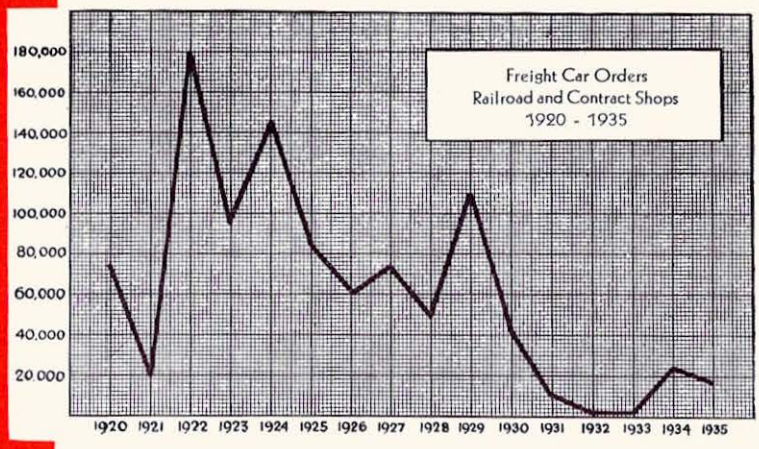
—Automotive industry geared in high for new production records

—Steel production over 75 per cent capacity

—Carloadings already at a 5-year high and still higher carloadings inevitable



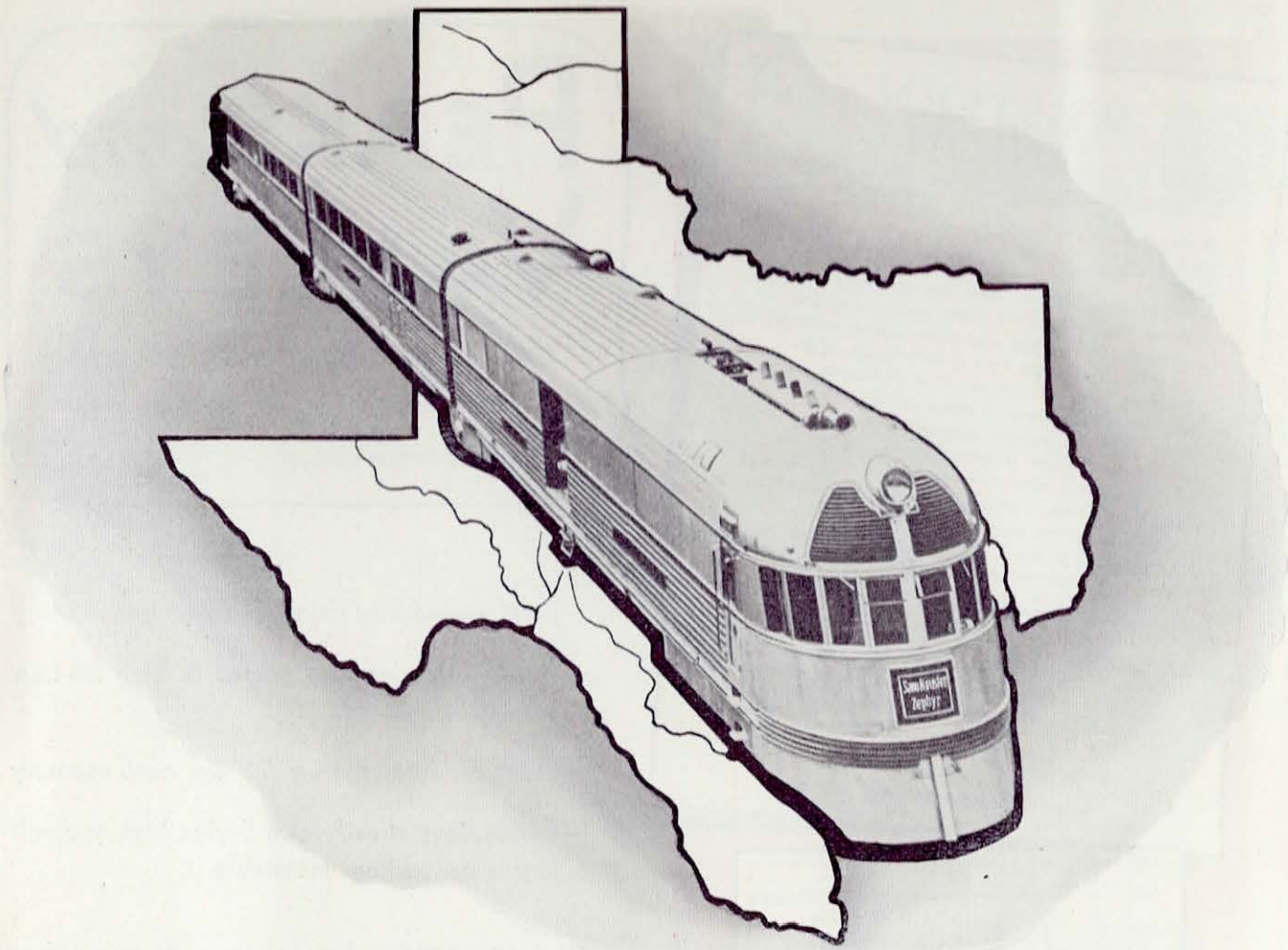
With 621,000 less freight cars ready to run than in the same period in 1929, and with freight car construction still in the depression valley, there arises the nationally important problem of providing adequate freight equipment to handle the increased traffic efficiently.



American Railway Car Institute

19 Rector Street

New York, N. Y.



The SAM HOUSTON ZEPHYR flashes

ACROSS THE LONE STAR STATE

Now a gleaming, stainless-steel train speeds across the plains of Texas, on a daily round trip between Houston and Fort Worth. And so the Sam Houston Zephyr, operated by the Burlington-Rock Island R. R., brings safe, swift service to another section of the country. This Budd-built train covers the 250 miles between Houston and Dallas at exactly a mile a minute—and then continues to Fort Worth, making the entire trip in five hours.

Travelers all over the country are enthusiastic about the safe, comfortable service provided by Budd-built trains. Railroad managements state that these trains have reduced operating expenses wherever they have replaced conventional equipment—and that they have increased revenue wherever they are in operation. Back of all the success that has been achieved by these sturdy, light-weight trains is the Budd System of Construction—high-tensile, stainless steel, "Shotweld."

Do you want the inside story of Budd-built streamlined trains? . . . Let us send you "The Conquest of Weight."

BUDD METHODS SAFELY ELIMINATE DEAD-WEIGHT

EDW. G. BUDD MANUFACTURING COMPANY

RAILWAY DIVISION ***PHILADELPHIA***

Safe Footing ... thanks to MULTIGRIP!

NOTICE the modified lozenge shape of the risers on Multigrip Floor Plate. See for yourself that there are no long surfaces for shoes to slide on. In railroad plants and machine shops, on car platforms or stair treads—wet or dry—Multigrip gives constant protection against slipping — maximum skid resistance regardless of the way the plate is laid or the angle from which it is approached.

Multigrip is pleasingly symmetrical in appearance too. Its modern design makes it ideal for use in locations where it will be seen by the general public. It not only looks safe — it is safe — and easy to walk on. These same risers, scientifically distributed, are flat on top, while their sloping sides make it impossible to catch the toe of a shoe on them. The result? Foot comfort. Safety.

One more important consideration: There's no waste in cutting. The pattern in Multigrip is continuous, whether adjoining plates are laid end to end, or side to side. Consequently, neat installations can be made at minimum cost. Write us for prices and data on weights and thicknesses.

MULTIGRIP FLOOR PLATE

CARNEGIE-ILLINOIS STEEL CORPORATION

Pittsburgh *Chicago*

Columbia Steel Company, San Francisco, *Pacific Coast Distributors*

United States Steel Products Company, New York, *Export Distributors*

UNITED STATES STEEL

An invisible TRANSVERSE FISSURE found and paint-marked by a SPERRY DETECTOR CAR

Higher Train Speeds Increased Traffic Older Rail

INCREASE the development of transverse fissures and, therefore, the necessity for TESTING RAIL IN TRACK

Recent testing results confirm the increase in FISSURE DEVELOPMENT: the table below (compiled from experience with identical Detector Car equipment, on the same track, and on widely separated roads) shows a 25% INCREASE over last year.

Year of test	Number of miles of practically identical track	Number of fissured rails detected per 100 track miles	1936 INCREASE
1935	7541	14.4	25%
1936	7741	17.9	

SPERRY RAIL SERVICE

Brooklyn, N. Y. Chicago, Ill.

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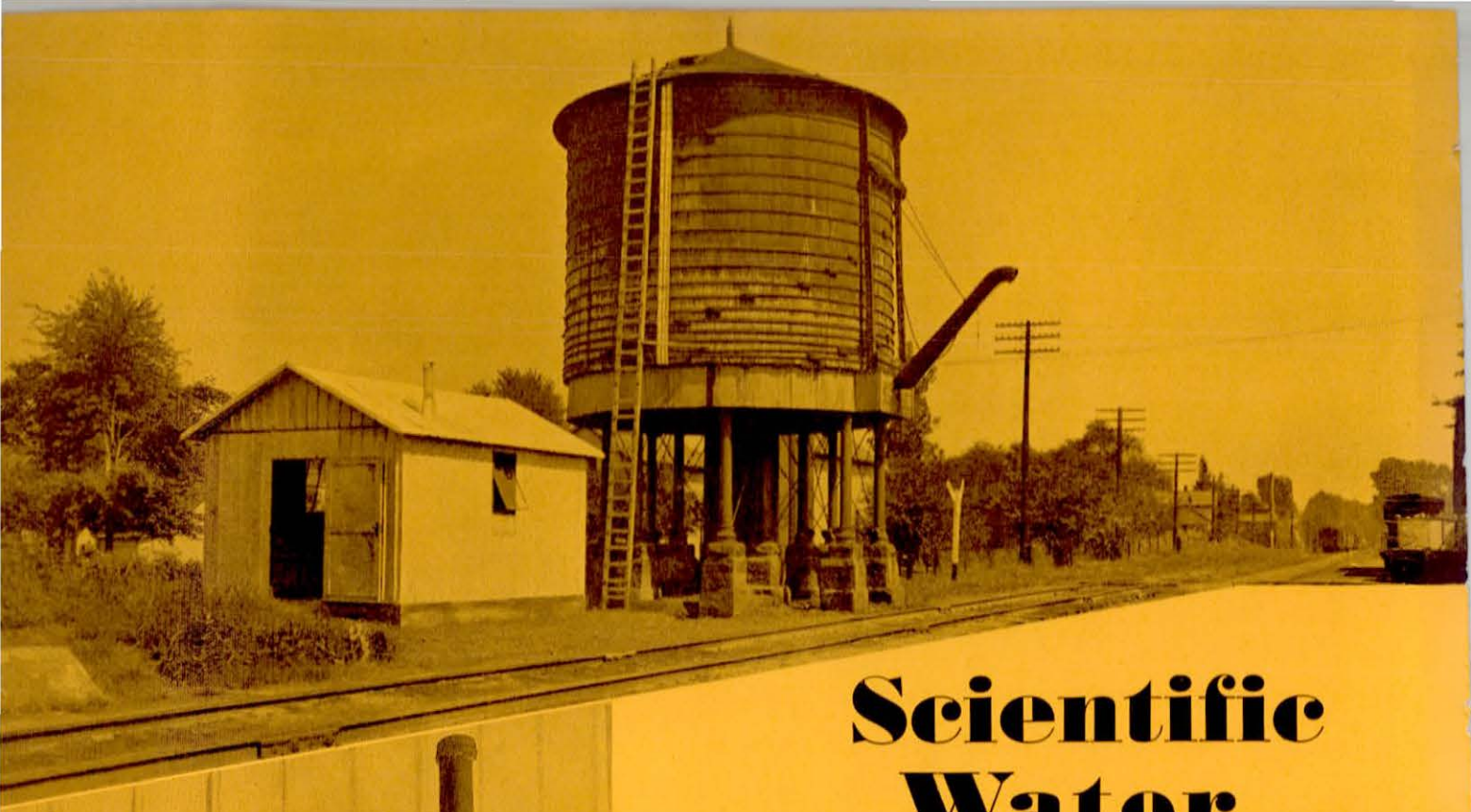

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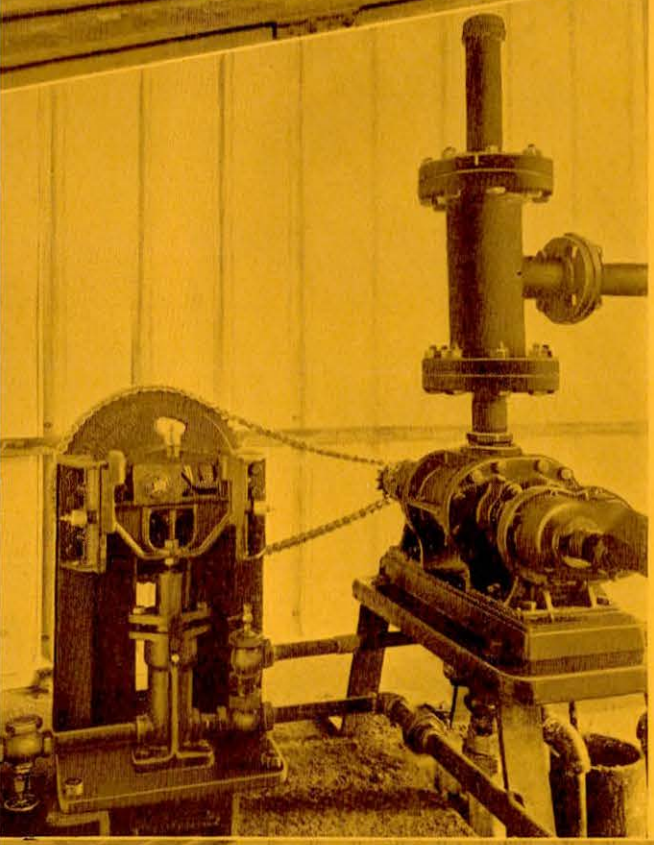

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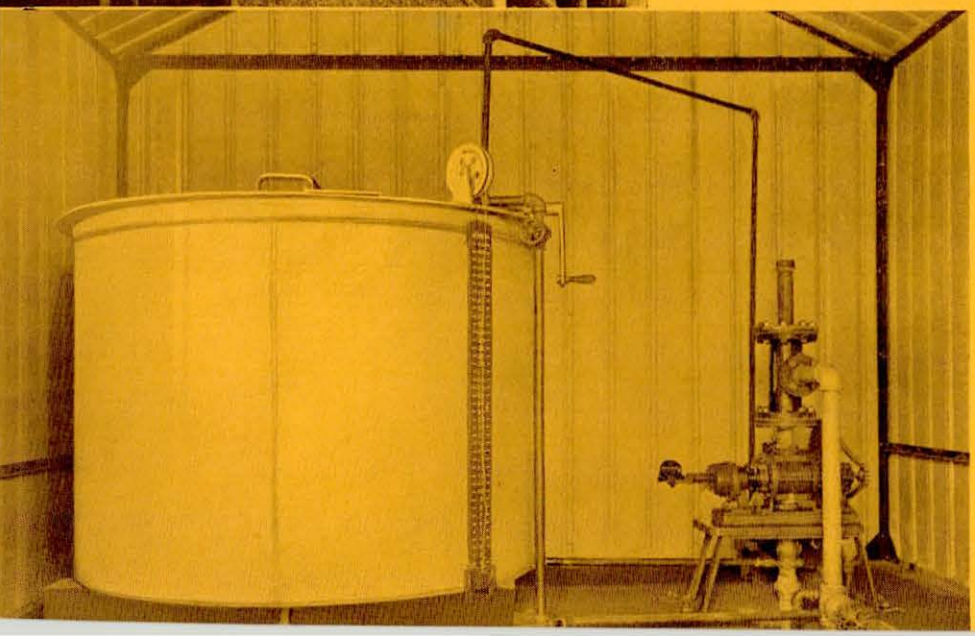

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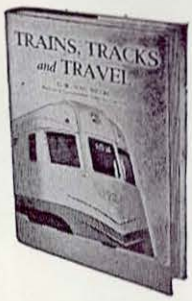

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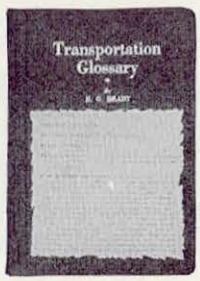

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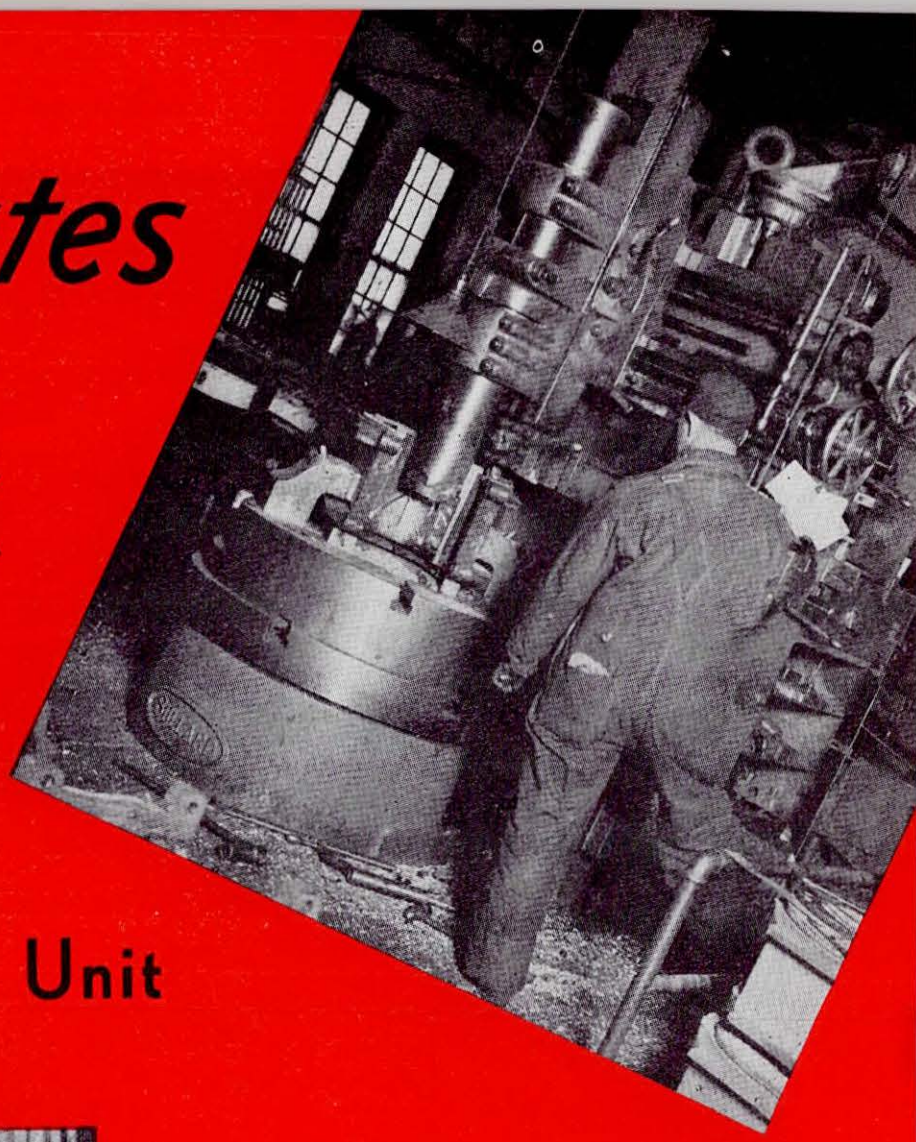

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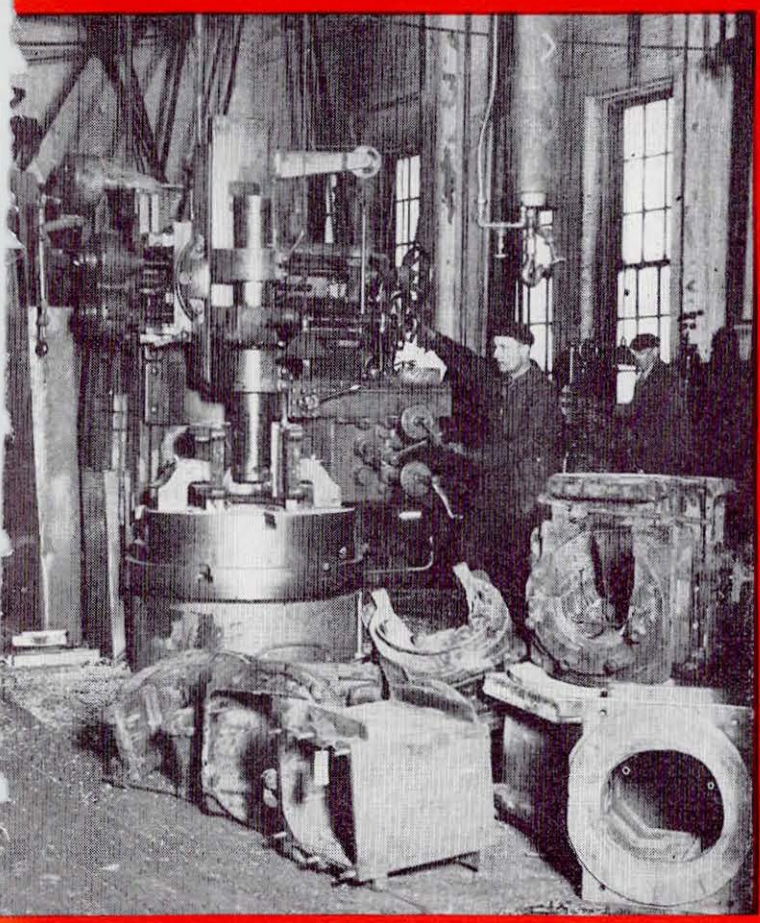

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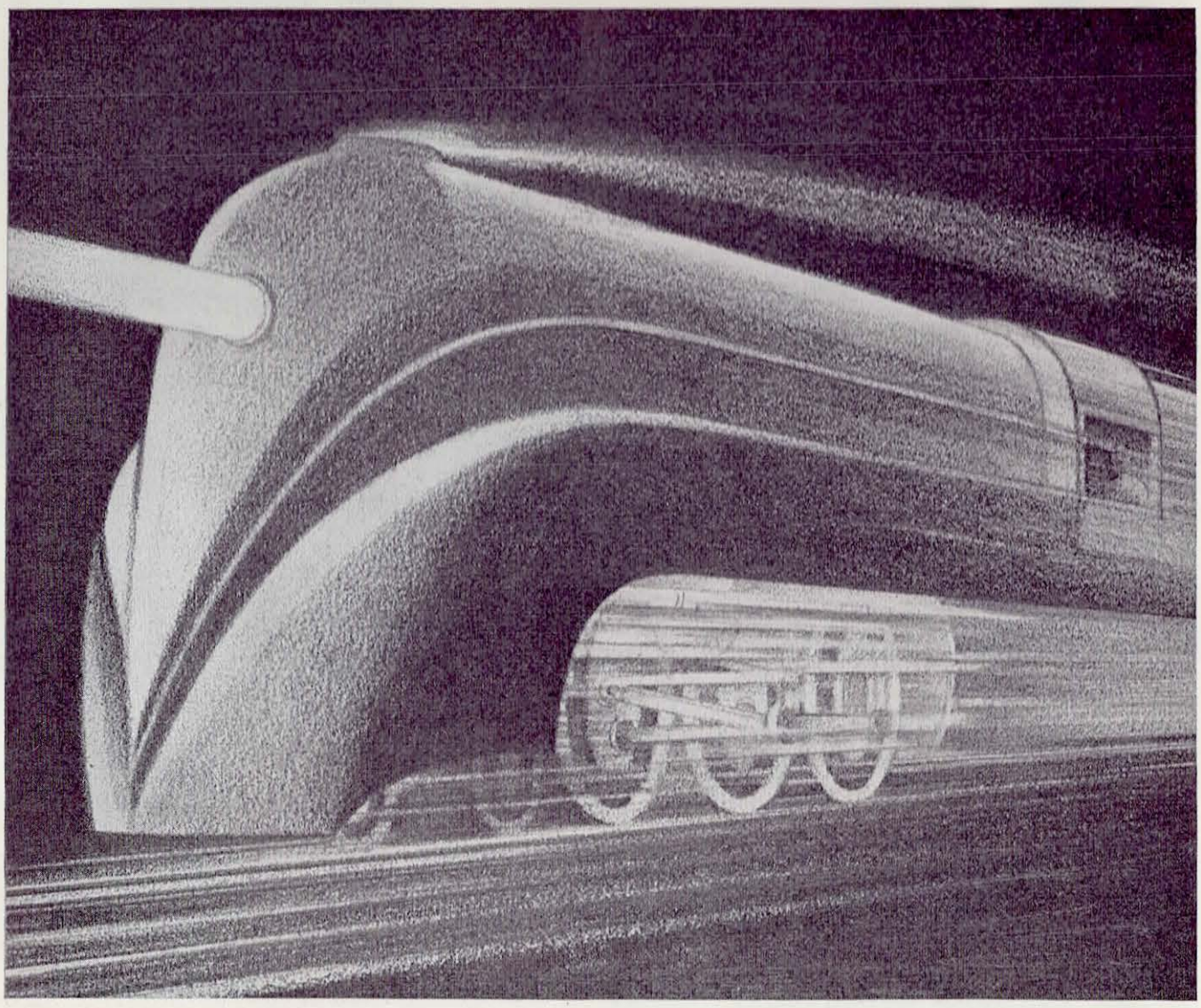

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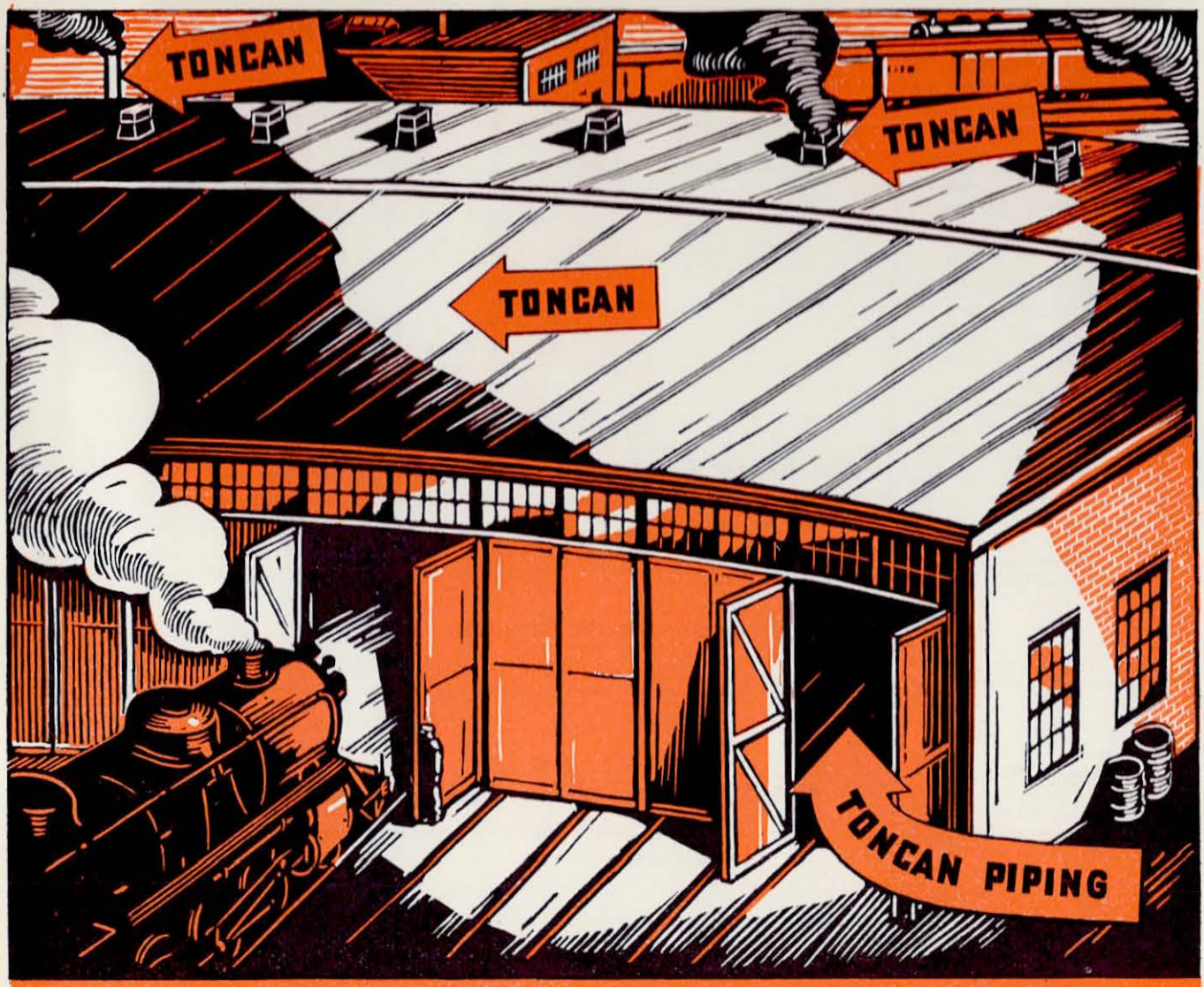

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RAILWAY AGE

The Freight Car Situation

Railways and shippers recently have been experiencing their first car shortage since 1923. It has not been serious, but it has been real. Total freight loadings in the week ended October 3 were 819,126. This was larger than in any week since that ending November 9, 1930, and relatively larger than in any week since July, 1930; and it somewhat overtaxed the available supply of cars. Whether this year's peak of traffic has been passed will be known only when loading reports for later weeks are available. It usually has been reached late in September or early in October. It seems probable the railways will "get by" during the rest of this fall and next winter without any more serious shortage of equipment than already has occurred. But what already has occurred demonstrates that if traffic increases relatively as much during the next year as it has during the last year, they will have to have a much larger number of freight cars in serviceable condition before the fall of 1937 than they have now if they are to avoid having a really serious car shortage a year hence or even sooner.

This is, therefore, an opportune time to survey the freight car situation. Seven years ago, in October, 1929, the Class I railroads owned about 2,216,000 freight cars and private companies about 292,000, a total of about 2,508,000. At present the railroads own about 1,770,000, and private companies about 300,000, a total of about 2,070,000, or a decline of about 438,000 cars within the last seven years. Excluding those needing repairs, both railroad-owned and privately-owned, there were actually available for service in October, 1929, about 2,360,000, and in October, 1936, only about 1,770,000, a decline of about 590,000.

Why Car Supply Has Declined

The reason for this unprecedented decline in the car supply is plain. It was due to the decline during the depression in the net operating income of the railways which, as has been repeatedly demonstrated in these columns, determines the amount of buying of equipment and materials that they can do. Furthermore, throughout the depression until 1936 they had large surpluses of cars even in October, when the peak traffic was being handled. In spite of the decline in the number of freight cars available that has been occurring since 1929, car surpluses in October have averaged about as follows: 1930, 400,000; 1931, 535,000; 1932, 550,000; 1933, 380,000; 1934, 325,000; 1935, 214,000.

With such large surpluses available even at the annual peak of the traffic and net operating income at a low ebb, it has naturally not been considered either desirable or practicable until recently to acquire large amounts of new equipment, and the number of freight cars available has continued to decline up to the present time. There has been more buying of freight cars this year than in any year since 1930, but reports of the Association of American Railroads regarding equipment placed in and retired from service, which include rebuilt as well as new cars, show that even in the first eight months of 1936 the number placed in service was only 26,696 as compared with 77,173 that were retired. While the number of cars available has been steadily declining, the amount of traffic demanding movement has been during the last three years increasing until finally the demands of traffic exceed the supply of cars.

Relationship Between Traffic Demands and Cars Needed

How many freight cars, then, will the railways probably have to acquire within the next year to avoid shortages within the next year, and especially when next fall they are confronted with the peak traffic of 1937?

Experience both before and during the depression indicates that the number of cars in good condition required to handle the traffic at any given time is somewhat more than twice the number of cars loaded week-

ly. In other words, if the traffic available is 1,000,000 loads a week, and there are not available somewhat more than 2,000,000 cars in good condition with which to handle it, there are almost certain to be at least local shortages even though the available cars are well distributed in accordance with the best methods ever employed.

This estimate of the number of serviceable cars required, which is based on experience in handling traffic of widely differing volumes, is supported by the experience of recent weeks. Omitting cars in bad order, but including all reported as "surplus," the number recently available for service has been, as already stated, about 1,770,000. This was 2.16 cars for each car loaded in the week ending October 3; and yet there were sporadic shortages, especially of coal cars. It is probably safest to estimate that, in order to avoid shortages, the number of serviceable cars available should be at least 2.2 times as great as the number that will be demanded for loading weekly at the peak of each year's traffic.

On the basis of this estimate, what will the railways probably have to do during the next year to make their supply of freight cars adequate to handling satisfactorily their peak traffic in the fall of 1937?

How Many Cars Will Be Needed?

Car loadings in the first forty weeks of 1936 were 13 per cent larger than in the first forty weeks of 1935. But they have been increasing at an accelerating rate, the increase in the first seven months of the year having been 12 per cent as compared with 18 per cent since August 1. Prior to the depression if general business and, in consequence, freight loadings increased more than seasonally during the latter part of a year they usually continued to increase during the next year. In view of the steady progress general business has now made ever since July, 1935, it seems entirely reasonable to estimate that the peak freight business in the fall of 1937 will be at least 15 per cent greater than it is now. This would make loadings at the peak in 1937 about 945,000 cars and would make the number of cars in serviceable condition required satisfactorily to handle the traffic about 2,080,000, or about 300,000 more than the number now reported in good condition and actually available for handling the peak traffic of 1936.

The number of cars in bad order at the time of the last "bad order" report in August was 258,000. It would appear, therefore, that even if all these cars could be and were put in serviceable condition, it would be necessary in addition for the railways to buy at least twice as many new freight cars within the next year as they have bought in any year since 1930.

Condition of "Bad Orders" and "Surplus"

But what is the actual condition of these bad order cars? What also is the condition of those that have been reported in the "surplus"? Reports made throughout this year indicate that railway managements have not regarded many of the "bad orders" as worth repairing. Between January and September average weekly car loadings increased from 588,000 to 765,000, but meantime the number of railroad-owned cars reported in need of repairs declined only from 267,000 to 257,000. This small reduction in the number of "bad orders" occurred in spite of the fact that in the first eight months of the year 77,173 cars were retired from service, a larger number retired than in the first eight months of any year since 1925 excepting in 1934. It seems significant as indicating the condition of the cars reported not only as in "bad order" but in the "surplus" that the number reported as in bad order after the beginning of the year had declined so little in spite of the fact that over 77,000 were scrapped. The figures make plain that many of the cars reported in the "surplus" at the beginning of the year were subsequently reported as in bad order.

All these figures indicate plainly that if traffic continues to increase relatively as fast during the next year as it has during the last year, it will be necessary for the railways meantime, if they are to avoid a really serious car shortage a year hence, not only to repair all of the bad order cars that actually can be put in serviceable condition, but also to buy a much larger number of new cars than they have been buying within the last year.

Will 150,000 New Cars Be Required?

On the basis of previous and recent experience they will have to scrap within the next year at least 100,000 of the 257,000 cars recently reported as in bad order. This would leave a maximum of only 157,000 "bad orders" that could possibly be put in serviceable condition. But according to the above estimate they probably will need 300,000 more cars in good condition to handle the peak traffic of 1937 than they have now. These figures indicate that they will need to acquire and place in service approximately 150,000 new cars within the next twelve months.

The car shortages that they had prior to 1924 were largely nominal because always accompanied by surpluses due to failure to distribute the available car supply efficiently. Since 1923 cars have been distributed much more efficiently than ever before. The mild car shortage which recently has been experienced has occurred in spite of this. The former slack in the car supply due to inefficiency of distribution having been eliminated, the time apparently has come when, if traffic is going to continue to increase, as seemingly it is, a larger increase in the number of cars fully fit for service will have to be made than in any year since before the war. This will present a difficult financial problem. Fortunately the financing of the acquisition of new equipment is easier than the financing of any other kind of capital expenditure; but plainly it will

require a very large increase in net operating income to enable the railways to finance all the improvements and additions to property that will be needed if traffic continues to increase.

August Net the Best Since 1930

Net railway operating income—which is the barometer measuring the railroads' ability to contribute to general economic recovery by purchases from the capital goods industries—in August totaled $64,680,718, an increase of 53.4 per cent over August, 1935, and was the highest total which has been achieved in any August since 1930. For the eight months of the current year, net railway operating income totaled $364,697,978—also the highest figure reached for the first two-thirds of any year since 1930. Operating revenues, totaling $350,584,819 in August, were the best earned in that month since 1931.

The recovery in revenues is strikingly uniform throughout the country, the West securing an improvement of 17.4 per cent against the average of 19.3 per cent for the country as a whole, which may be considered remarkably close in view of the incidence of the drought in that section.

Interesting also, and possibly significant too, is the variation in the increase in passenger revenues in the various districts. In the United States as a whole the passenger revenue advance in August, 1936, over the same month last year was 16.2 per cent (which may be compared with an increase of 20.3 per cent in freight revenues). In the Pocahontas region the increase in passenger revenues was 28.6 per cent; in the Southern region, 19.7 per cent; in the Western district, 17.7 per cent—while in the Eastern district the increase was 14.3 per cent. It will be remembered that reductions in basic rates were made in the East as recently as June 1, and that the rates in other territories, provided round-trip tickets are purchased, are materially lower than those in the East. While it is doubtless too early to arrive at a definite conclusion, do not the comparative increases suggest, at least, the possibility that the optimum rate level in Eastern territory has not as yet been established?

The improvement in railway earnings is also reflected in the highest average prices for representative stocks and bonds which have been quoted on the New York Stock Exchange since the first half of 1931. There are as yet no signs of a recession in the most favorable market for the sale of railway equipment obligations which has ever existed, whereas there are many which suggest that re-equipping of the railways on a much larger scale than at present cannot with safety be much longer delayed.

Grade Crossings a Public Relations Factor

At a time when the railroads are engaged in a determined campaign to bring traffic back to the rails and to foster improved public relations it behooves them to give consideration to every phase of their activities or of the railroad plant that is likely to have some influence in molding public opinion. One constituent in the physical make-up of the carriers that is not always accorded the consideration it deserves in this respect is the railroad-highway grade crossing. Such crossings are all too frequently regarded merely as places where the railroads and the highways intersect. But they are infinitely more than this. They are meeting points where the public comes in brief contact with the railroad and then passes on carrying with it a definite, and perhaps fixed, impression concerning the railroads, which may be favorable or otherwise, depending on the condition of the particular crossing.

In a sense, therefore, the highway crossing is a "representative" of the railroads before the public. When it is considered that there are 240,000 such "representatives" in this country, through which innumerable contacts are made with the public daily, it becomes readily apparent that the sum total of the impressions created during these brief contacts is of no little consequence. Hence, defective crossings, in addition to being a hazard to safety, strike a decidedly discordant note at a time when carriers are anxious to acquire and preserve the goodwill of the public.

A protruding spike, for instance, may make the motorist fear for the safety of his tires; the noise created when passing over loose planks may grate unpleasantly on his nerves; or a jolting contact with a crossing that is badly out of surface is apt to fill him with resentment against railroads in general. When encountered with sufficient frequency, it is entirely possible that such crossings may have an adverse affect on the attitude of the motorist towards the railroads. On the other hand, habitual contact with level well-maintained crossings creates a very favorable impression that is certain to redound to the benefit of the carriers.

During the depression, expenditures for the improvement and upkeep of highway crossings were curtailed along with other railway expenses, with the result that many crossings, particularly those on unimportant lines and on secondary highways, are not now in the best of condition. In view of the status of the highway crossing as a "representative" of the railroads, one wonders if the accelerated improvement of such crossings, by means of new installations or the making up of deferred maintenance, does not comprise an important step in the program of the railroads to foster improved public relations.

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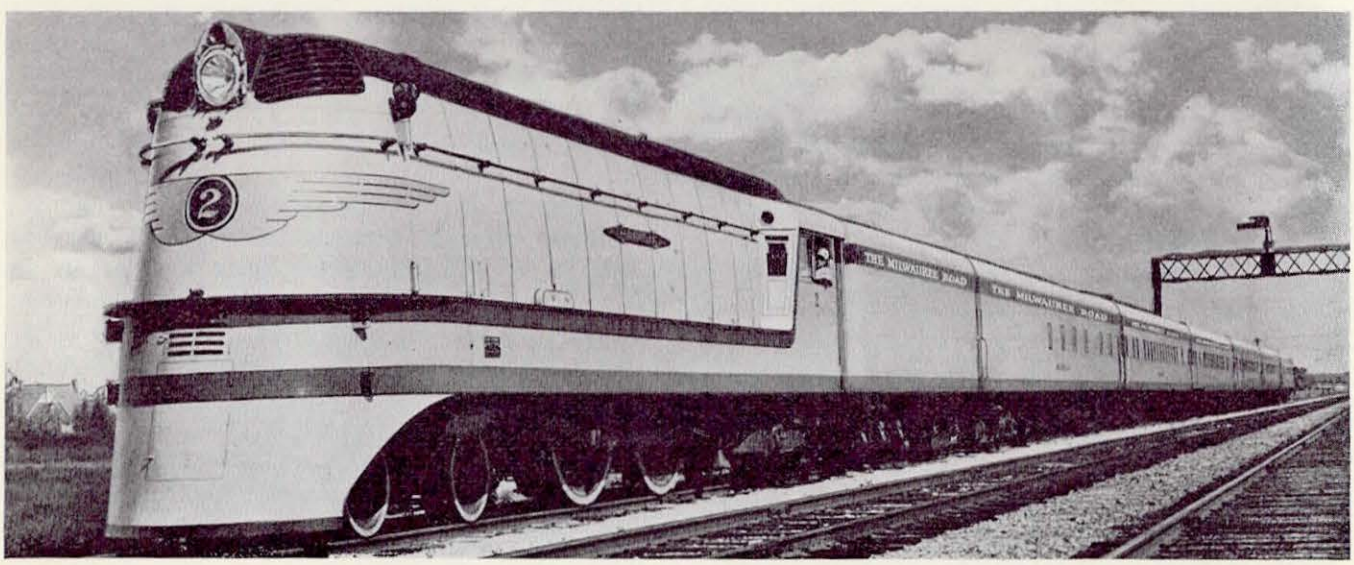
New Equipment for the Hiawatha

The first cars are replaced by new ones which are still lighter in weight, and have finer fittings throughout

THE Chicago, Milwaukee, St. Paul & Pacific has just placed in service complete new car equipment for the Hiawatha, the well-known, light-weight, high-speed steam train which this road has been operating with notable success for the past eighteen months between Chicago and the Twin Cities, Minn. The two new 9-car trains, embody several unique changes in design, based on experience with its predecessor. It is not only lighter in individual car weight, but larger, more comfortable and has finer fittings throughout. Additional cars and seats are provided, dining facilities have been enlarged and air conditioning and illumination improved. The equipment replaced will be used as a second section of the Hiawatha, operating between Chicago, Milwaukee, New Lisbon and thence over the Valley division to Minocqua, Wis.

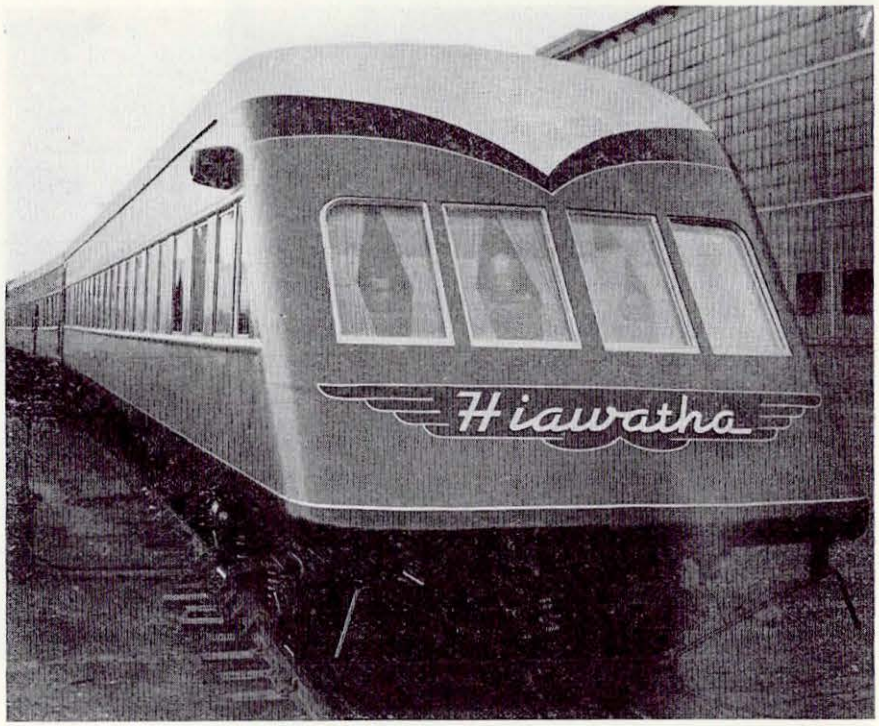
Cars for the new Hiawatha were designed and built at the Milwaukee shops of the C. M. St. P. & P. They are of the same general dimensions and shape as the first cars, described in the *Railway Age* of May 11, 1935, page 726. Still further reductions in weight are effected, however, by the use of Cor-Ten steel for the car superstructures, underframes and load-carrying members; by the more extensive use of aluminum alloys for interior trim, air conditioning ducts, conduit, brake cylinders, slack adjusters, etc.; and by the lightening of such parts as car floors, couplers, draft gears and brake rigging. Individual cars in the original Hiawatha weighed from 31



The Original Milwaukee Train "Hiawatha"

to 33 per cent less than conventional riveted steel cars of the same capacity. In the new cars, a still further saving of about 10 per cent is effected so that they are from 41 to 43 per cent lighter than conventional steel cars.

What this weight reduction, in conjunction with roller-bearing trucks, means in the way of reduced tractive-force requirements can be readily appreciated when it is observed that the same locomotive which made the high-speed schedule between Chicago and the Twin Cities with seven cars in the 1934 Hiawatha can make the same schedule with nine cars in the 1936 Hiawatha. Reference to the table shows an increase in train weight from 1,355,300 lb. to 1,408,800 lb., or only about 27 tons, in spite of the addition of two extra cars. The table also shows an increase in the number of individual seats from 376 to 464 and a decrease in car weight per individual seat from 2,146 lb. to 1,854 lb., or 13.6 per cent. Other interesting figures shown in the table are the number of saleable seats and the respective car and train weights per saleable seat.



The Rear of One of the New Beaver-Tail Parlor-Observation Cars

Principal Changes in the New Train

Aside from the use of Cor-Ten steel and aluminum alloys to reduce weight, the principal changes in design of cars for the new train are: (1) the substitution of built-up welded sheet construction with stiffeners, instead of the pan construction first employed; (2) the more extensive use of spot welding in connection with arc welding for fabrication purposes; (3) the provision of a 10-in. H-beam for the center sill instead of a 12-in. A.A.R. section, thus giving 2 in. more rail clearance; (4) the mounting of all air-conditioning equipment, batteries, water tanks, etc., in a narrow streamlined rectangular steel shell under the center sill, thus reducing wind resistance underneath the car and lowering the center of gravity of the car* about 7 in. to a point below the floor line, or approximately 4 ft. 2 in. above the rails; (5) the provision of rubber-covered closures between the cars and retractable vestibule steps still further to accentuate the streamline effect and reduce wind resistance; (6) the entire elimination of vestibules and steps in the diner and the express tap-room car, and the provision of only one vestibule in each of the other cars.

Improvements in the air conditioning system include a certain reduction in weight in the Safety-Carrier six-ton steam-jet unit which is installed under each car, and the provision of a more compact design. Somewhat more powerful fans are used in the air distribution system and a revised double air duct arrangement provides for a more effective distribution of the conditioned air throughout the length of the various cars. The same blower is used to circulate the cooled air as is used for the heated air in the heating season. Heated air is introduced in the car body through grilles located near the floor and the cooled air through grilles located in the luggage rack near the ceiling. There are no conventional heating pipes in the body of the car. Standby or yard heat is furnished by a concealed radiator in each end of the car.

The lighting equipment is also revised to a certain extent to provide increased candle power where needed, the intensity of illumination being controlled by means of lenses. In the coaches, a high intensity is obtained at the reading level with two lenses for each seat. The fixtures are located at the sides underneath the luggage rack. In the dining and tap-room cars, the plane of the lenses is horizontal, with the light controlled so as to produce the highest intensity of illumination on the table top, keeping all direct glare out of the eyes of the passengers.

Important changes are also made in the consist of the train, which includes the express tap-room, the diner and four new coaches, a parlor car, a drawing-room parlor car and a beaver-tail parlor car. The dining car is located in the middle of the train instead of at the head end in combination with the tap room. The coaches have greater seating capacity and more storage space for luggage. Three parlor cars are provided instead of two and this permits reducing the size of men's and women's lounge rooms in some of the other cars.

The 18 cars for the new Hiawatha service are part of a complete order of 37 cars, just completed at Milwau-

* The center of gravity referred to is that of the combined car body and trucks.

One of the Large Dining Cars

kee shops, which will be used in a pool with the older cars to meet the requirements for four separate train units. This new equipment includes five baggage cars, five mail-express cars, two diners, two express tap-room cars, two parlor cars, two drawing-room parlor cars, two beaver-tail parlor cars and 17 coaches. All of the cars are semi-tubular in shape with turtle-back roofs and sides curved inward slightly at the bottom. They present a flush outside surface on the sides and roof and, by provision of the full-width, rubber-covered diaphragms between cars, the train gives the appearance of a unit train without any sacrifice of interchangeability to meet varying traffic requirements. Each car is slightly less than 82 ft. long between coupler pulling forces and the total length of nine cars is therefore about 737 ft. The cross-section dimensions are essentially the same as those given in the article describing the first Hiawatha cars.

Particular attention has been paid to insulation and sound deadening, all interior steel surfaces being sprayed with a sound-deadening compound containing cork, with the insulation of the sides and roof applied while the sound-deadening material was still wet. It is expected that this type of construction will assist in reducing noises in the cars. The sides and roof of the cars are insulated with Dry Zero, the sides having 3 in. of insulation and the roofs 2½ in. As stated, the insulation is virtually glued to the steel sheets by means of the sound-deadening compound. To facilitate the application of the insulation, the material is worked up in blanket form, a separate blanket being prepared beforehand of the proper size to fit the cavities between the posts, or carlines. The floors are insulated with fibre glass, and here, also, the insulation is furnished cut to size for each cavity in the floor.

The four-wheel trucks, equipped with Commonwealth cast steel frames, Timken roller bearing and Simplex clasp brakes, represent a further refinement in design, whereby the weight is reduced from 15,195 lb. per truck

The "Tip Top Tap" Room in the Forward End of the Train

One of the New Coaches

in the original train to 14,513 lb. per truck in the new Hiawatha. Brake cylinders and slack adjusters are made of aluminum alloys, and brake levers are reduced in cross section and weight wherever feasible by the use of high-tensile alloy steel. The Safety truck-mounted generator is equipped with Dayton-Roderwald V-belt drive.

The exterior appearance of the new train is striking. Aluminum paint is used on the car roofs. The top border on the sides is in maroon with an aluminum stripe over and above the windows, and near the bottom of the sides there is a silver stripe and maroon border. The housing under the cars is brown, as are the trucks. A wing design, similar to the one on the head of the locomotive, is painted on the sides of each car and in the middle of each wing the car number or name appears. On the rear of the beaver-tail car there is a wing with "Hiawatha" in the center.

The interior arrangement of the various cars is indicated on the floor plans. In the express tap-room car, an enclosed compartment in the forward end 30 ft. 6 in. long, is used for through express. The tap room has a bar extending across the entire width. Bar service is available at all times enroute. There are 10 tables, each seating at least four people, the capacity, therefore,

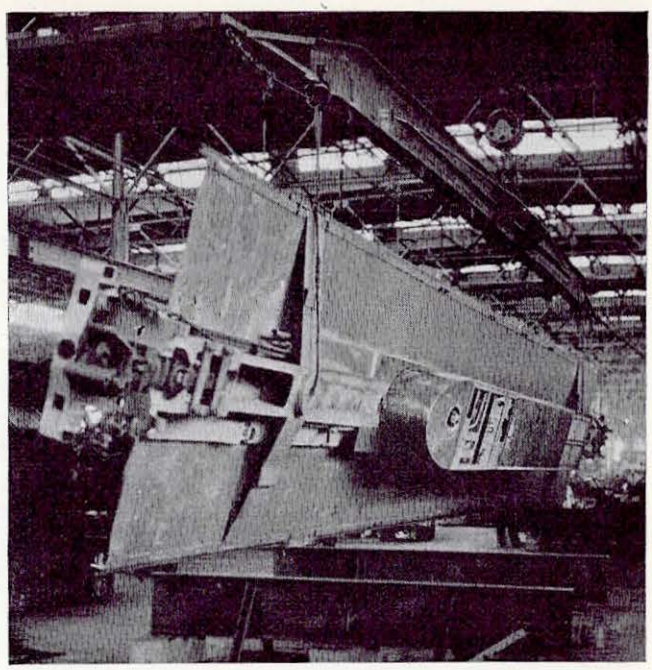
being referred to as 40. However, at the circular tables six people can be seated comfortably. An experienced tap room steward and efficient staff of waiters are in attendance. There is a push button at each table to summon a waiter. Toilet rooms are located in the car. There are no vestibules or windows, save for a 10-in. port hole on either side near the bar.

The ceiling is curved and painted a bone white. Panels at tables have modernistic mirrors, with a background painted peach. Panels are trimmed with stainless steel and wainscoting set off with two stainless steel bands set in wood molding. Molding between the bands is painted orange. Walls surrounding the panels are painted with five shades of blue properly blended. The floors are covered with mottled grey rubber. Tables are rubber-covered and have table legs and pedestals of polished aluminum. Seats have polished aluminum frames, with seats and backs covered with red leather. The tap-room car also has a small compartment equipped with a work table for the train conductor. It is not necessary to pass through the tap-room car to reach any other car on the train, as it is the first passenger car behind the locomotive.

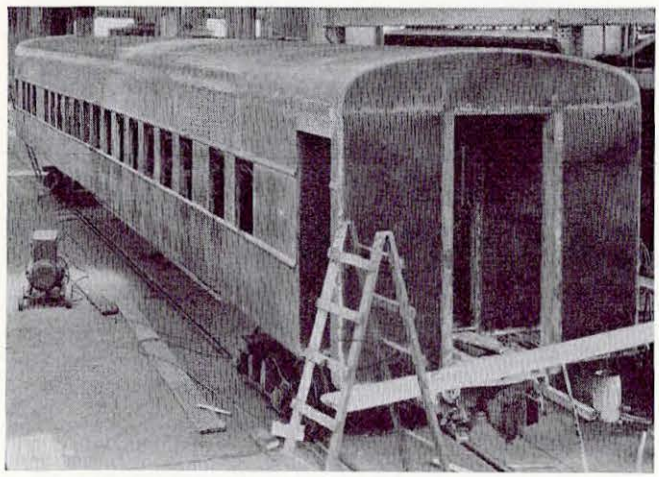
The coaches have vestibules at but one end, normally the forward end. The vestibules and steps are exceptionally wide to permit greater ease and safety in entering or leaving the car. The main passenger compartment, 46 ft. 2 in. long, seats 52. The men's lounge, 14 ft. long, seats 10 and the ladies' lounge, 6 ft. long, seats 4. The luxuriously upholstered seats in the body of the car turn in pairs, but may be reclined separately. There is much more than the usual leg room between the seats. Wide windows are placed slightly forward of the seats. Exceptionally wide overhead luggage racks extend the entire length of the car. Roomy space is available under the seats for the storage of luggage and at one end of the car there are compartments for the storage of hand baggage and clothes. Electrically refrigerated water coolers are provided. Coach porters assist the passengers in handling luggage.

Located between the parlor cars and coaches, the dining car provides seats for 48, the largest capacity of any self-contained dining-car unit in the country. The length of the dining compartment is 40 ft. The decorative scheme includes bone-white ceilings, silver-gray walls of imported Harewood veneer and dark blue carpeted floor. Tables are of chromium tubing with blue rubber tops; the chairs are of polished aluminum upholstered with coral velour. Focused lighting concentrates maximum illumination on the table tops without glare or annoying shadows. Meals of exceptional quality are provided at moderate prices, in addition to the la carte service. The diner is equipped with a pantry 10 ft. long and a kitchen 18 ft. 6 in. long. A specially devised cooling system provides comfort for the kitchen crew in what would otherwise be extremely warm quarters. Fuel oil is burned in the range.

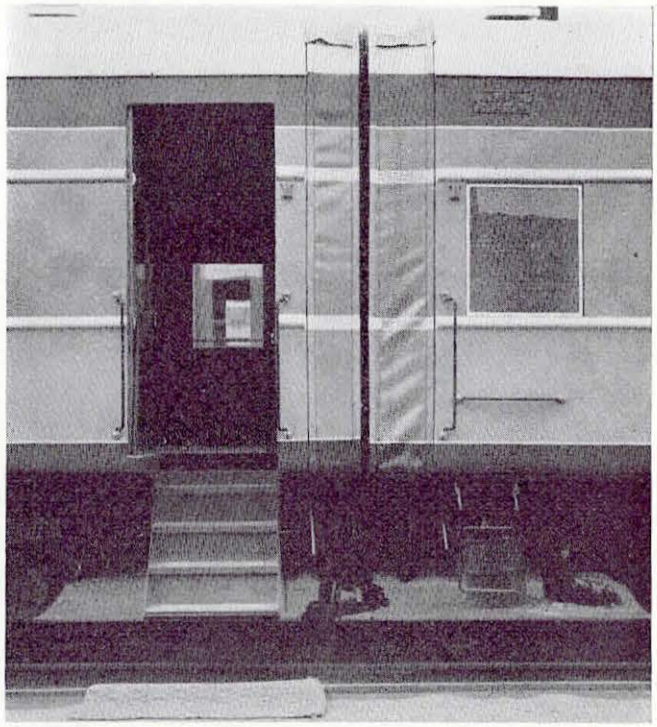
The parlor car has 28 swivel chairs in the main passenger compartment which is about 51 ft. long. There are four seats in the men's lounge and four in the ladies' lounge, each of these lounges being slightly over 6 ft. long. Adjacent to each seat in the body of the car is a small shelf or table-like arrangement that folds and fits



Completed Underframe With All Underneath Parts Housed in a Streamlined Metal Box Under the Center Sill



A Car with the Underframe Sides, Roof and Ends Assembled Ready for Finish Welding



The Rubber-Covered Diaphragm Closure Between Cars and Retractable Vestibule Steps

Floor Plans of the Types of Cars Used in the Newly Equipped Hiawatha Trains

into the wall when not required by passengers for such use as writing or holding reading material. All parlor cars have bone-white ceilings, walls above the window sills and ends of Avodire veneer with African mahogany wainscoting, and aluminum window frames and molding. The floors are covered with carpet of two shades of blue in the body of the car and in the ladies' lounge; in the men's lounge with grey rubber. Seats in the body of the car are covered with turquoise green plush.

The drawing-room parlor car is similar to the straight parlor car except that a 10-ft. drawing room has been provided which reduces the length of the main compartment and its seating capacity to 22. The men's lounge is, however, somewhat larger than in the straight parlor car, being about two feet longer and allowing five seats instead of four. The women's lounge also seats four. A total of seven persons can be seated in the drawing room.

The beaver-tail parlor car has a vestibule at the forward end and toilet rooms, clothes lockers, and baggage lockers are contained in the first 12 ft. of the car body. The passenger compartment is 47 ft. 10 in. long with seats for 26 persons. The rear compartment of this car, an observation lounge seating 12, is materially changed from the 1934 beaver-tail. On the exterior, the rear platform is omitted and the end rounded similar to the side of the car. This has lengthened the body of the car about one foot and permits placing an additional window between emergency side door and the rear end. The number of windows in the curved section has been increased from two to four. No buffer protrudes at the rear of this car.

Radios are installed in the tap room and the beaver-tail cars, being of the automotive type with automotive antennae mounted on the roof. The receivers are concealed and operated by the crew, or porter, as the case may be. The tap room has one speaker concealed in the ceiling cove and the beaver-tail has two speakers, one for the body of the car and one for the rear compartment, concealed in the ceiling cove.

Scale Weights of Hiawatha Trains of the C. M. St. P. & P.

	1934 Hiawatha		1936 Hiawatha	
	No. of cars	Weight in lb.	No. of cars	Weight in lb.
Express tap-room car	1	131,500	1	96,200
Coaches	4	448,800	4	379,600
Dining car	..	.....	1	102,300
Parlor car	1	113,700	1	95,100
Drawing-room parlor car	..	.....	1	95,200
Beaver-tail parlor car	1	112,900	1	92,000
Total car weight	7	806,900	9	860,400
Locomotive weight	..	548,400	..	548,400
Total train weight	..	1,355,300	..	1,408,800
Total seating capacity		376		464
Number of saleable seats		238		291
Car weight per individual seat		2,146		1,854
Car weight per saleable seat		3,390		2,957
Train weight per individual seat		3,604		3,036
Train weight per saleable seat		5,694		4,841

FOLLOWING A 30 PER CENT INCREASE IN RAIL TRAVEL this year to and from the Pacific Coast, member lines of the Trans-Continental Passenger Association have decided to place in effect the same low rates for the 1937 summer season. The round trip rates between Chicago and the Pacific Coast will be: First class, $86; intermediate (tourist), $68.80; and coach, $57.35, with corresponding fares between other points. The tickets are to be sold in either direction from May 15 to October 15, with return privilege to October 31, 1937.

Car Shortage Reported in Mid-West Territory

A CAR shortage that may assume major proportions was reported at the fortieth regular meeting of the Mid-West Shippers' Advisory Board at Rockford, Ill., on October 8. Commodity committee reports indicated that because of rapidly increasing business, difficulty is already being experienced in securing cars, particularly for open top and box car shipments. Shippers also warned the railroads to replace the large number of cars retired during recent years and speed up work on cars now awaiting repair in order to avoid a major car shortage in the near future.

Likewise at the October 8 meeting of the Atlantic States Shippers Advisory Board at Baltimore, Md., the possibility of car shortages was a major topic of discussion although railroad representatives assured shippers that no such eventuality need be feared in the East.

Mid-West Board Meeting

Freight cars in need of repairs at the present time amount to 17 per cent of the 1,766,520 railroad-owned, it was reported at the Mid-West Board meeting, as compared with 14.2 per cent on April 1, while cars on order with builders or company shops totaled 22,354 on September 1, as compared with 7,240 on September 1, 1935. New cars placed in service during the first eight months of the year totaled 20,588. While the number of railroad-owned cars decreased from 1,815,570 on January 1 to 1,766,520 on September 1, traffic increased from weekly loadings of 590,000 cars to 807,070 for the week of September 26. The 13 advisory boards forecast carloadings for the entire country 9.7 per cent greater during the fourth quarter of 1936 than in the same quarter of 1935.

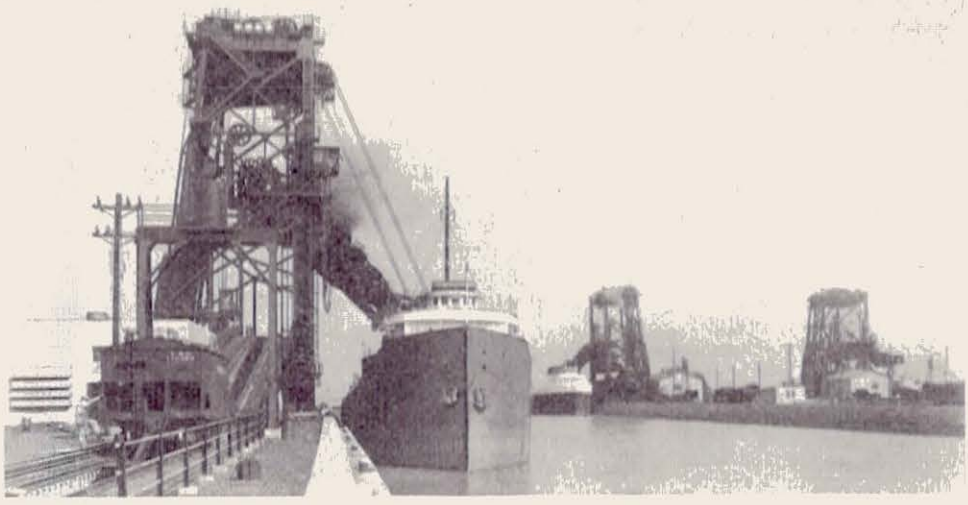
W. Y. Wildman, secretary, in summarizing the committee reports, said that the 6.6 per cent increase in carloadings estimated for the fourth quarter, in the mid-west board territory, was conservative, for the drought conditions in the west prevented an accurate estimate of livestock and other agricultural shipments. While the livestock shipments in this territory are estimated to increase 10 per cent for the territory as a whole, some shippers anticipated increases as high as 40 per cent.

Coal shippers reported a noticeable shortage of cars during recent months and anticipated further shortages during the remainder of the year when their shipments are expected to increase 10 per cent as compared with last year. Some shippers also reported difficulty in securing box cars. L. M. Betts, manager of the Car Service Division of the Association of American Railroads, replied that the supply of open top cars will be adequate to handle coal traffic. At the present time, he said, cars on line are 95 per cent of ownership and in some instances even higher. He said that the railroads are making an effort to meet the demand for class A box cars.

Because of a heavy demand for agricultural equipment, and because of changes in its design which prevent the loading of tractors and combines to the minimum weight of 50-ft. cars, there is a demand for 52-ft. cars, which only a few railroads own. Because of this situation shippers of agricultural equipment asked that the railroads either purchase 52-ft. cars or reduce the minimum for 50-ft. cars.

Another subject given serious consideration was the simplification of tariffs. One phase which drew much

(*Continued on page 568*)

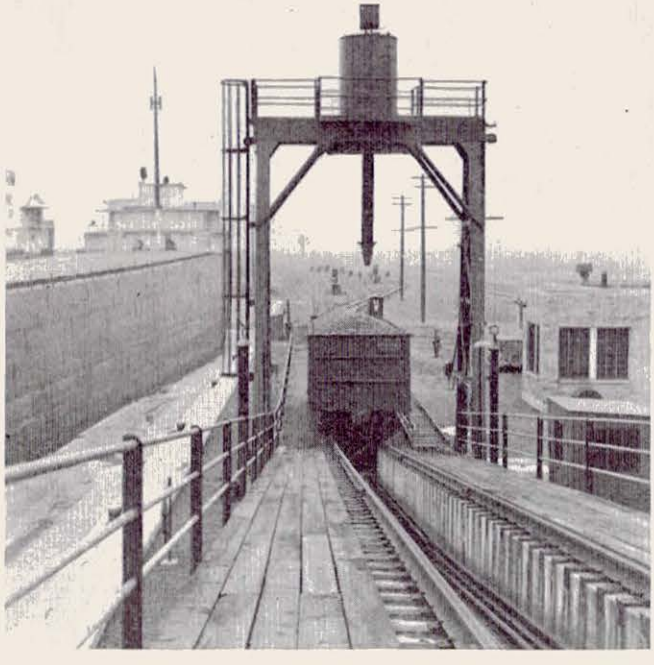


The Coal Handling Facilities at Presque Isle, Showing at the Left the New Dumper Constructed in 1935, and at the Right the Dumpers Constructed in 1930

C. & O. Builds Third Modern Coal Dumper at Toledo, Ohio

New facility, incorporating several new features, brings road's coal transfer capacity at this lake port to 2,160 cars a day

LAST fall the Chesapeake & Ohio enlarged its already large-capacity rail-to-ship coal handling facilities at Presque Isle, Toledo, Ohio, by the addition of a third modern coal dumper, bringing the facilities of the road at this point up to a combined daily unloading capacity of 2,160 cars. The new coal dumper is similar in general design and operation to the two other dumpers at Presque Isle, constructed in 1930, but, together with the older dumpers which have been further modernized, it incorporates several special features developed in recent years to effect the more expeditious and economical transfer of coal from cars to boats without degradation, and to permit wetting of the coal to any moisture content desired.



Looking Down the Dumper Approach Incline and the Barney Pit From the Cradle, Showing the Arrangement Provided for Wetting the Coal

The new dumper, which is on a new pier entirely independent of the other dumpers, is supported by new load and empty car yards, and by complete modern auxiliary facilities for its most efficient operation and for the convenience and comfort of employees. In addition, the dumper incorporates a number of unusual features designed to insure the highest degree of safe operation and to facilitate maintenance and repairs.

Location Convenient for Lake Coal Trade

The coal transfer facilities of the C. & O. at Presque Isle are located on Maumee Bay, Lake Erie, directly at the mouth of the Maumee river, about seven miles from the business center of Toledo, and replace old facilities located on the river front directly within the heart of the city. When the change of location was made in 1930 to permit the expansion of facilities and to make them more readily accessible to the lake coal trade, the road built a new large coal dock at Presque Isle, with two modern lifting car dumpers, which, with large capacity load and empty car yards, served the then contemplated requirements of its growing lake coal business. However, in 1934, it became evident that additional coal

transfer facilities would be required, which led to the construction of the new and latest dumper in 1935.

With the new dumper, the Presque Isle facilities have a combined rated capacity of 150 cars an hour, or 3,600 cars a day with continuous operation. With a loading efficiency of 60 per cent, which is considered favorable in view of the time lost unavoidably in the docking and undocking of boats and in moving them during loading operations, this represents an actual loading capacity of 2,160 cars a day for the three dumpers, equivalent to approximately 118,800 tons.

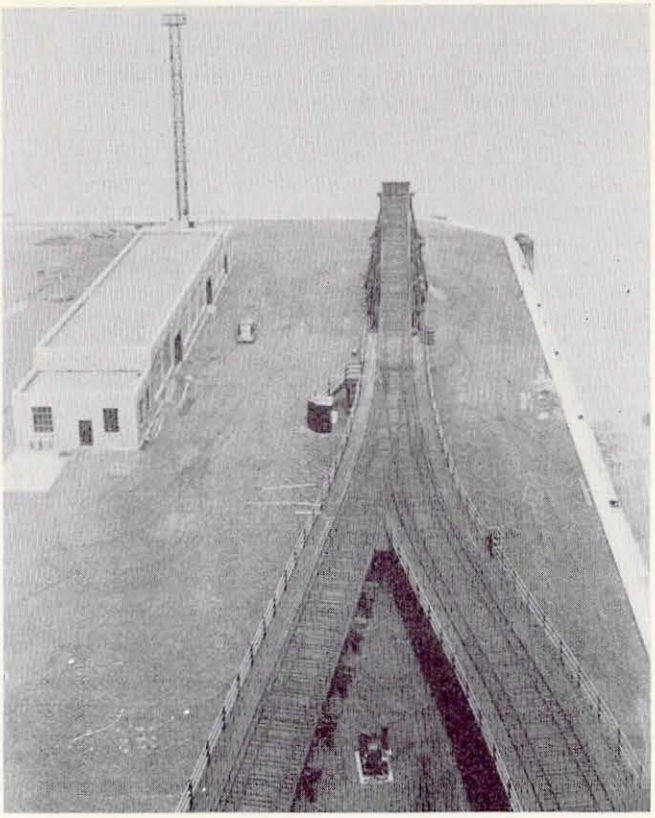
Suitable for All Open Top Cars and Boats

The new dumper was constructed on a long projecting pier-shaped section of "made" land, surrounded by a timber and concrete bulkhead, which extends out into the bay in a general north and south direction, directly west of a new wide vessel slip, 25 ft. deep, which separates it from the still larger bulkheaded area supporting the coal transfer facilities built in 1930. The dumper is located approximately 550 ft. from the water end of the pier, directly along its east side, and, in the usual manner, is served by a ramped approach track, an empty car kick-back, and an empty car return track.

The dumper itself, which is designed for loading all types of vessels in the lake coal trade, has a rated dumping capacity of 50 cars an hour, and will handle all types of coal cars. Like the older dumpers, the new dumper consists essentially of a structural steel car hoisting tower, or tipple, an elevating cradle with an adjustable platen or platform, car clamping and coal flow-retarding mechanisms, a tapered, inclined pan or apron over which the coal is passed to a point directly over a vessel, and a telescopic chute, with a trimmer and gates at its base, through which the coal is lowered into and distributed within a vessel; together with suitable counterweights, drive motors, hoisting drums and control mechanisms.

Hood Prevents Breakage of Coal

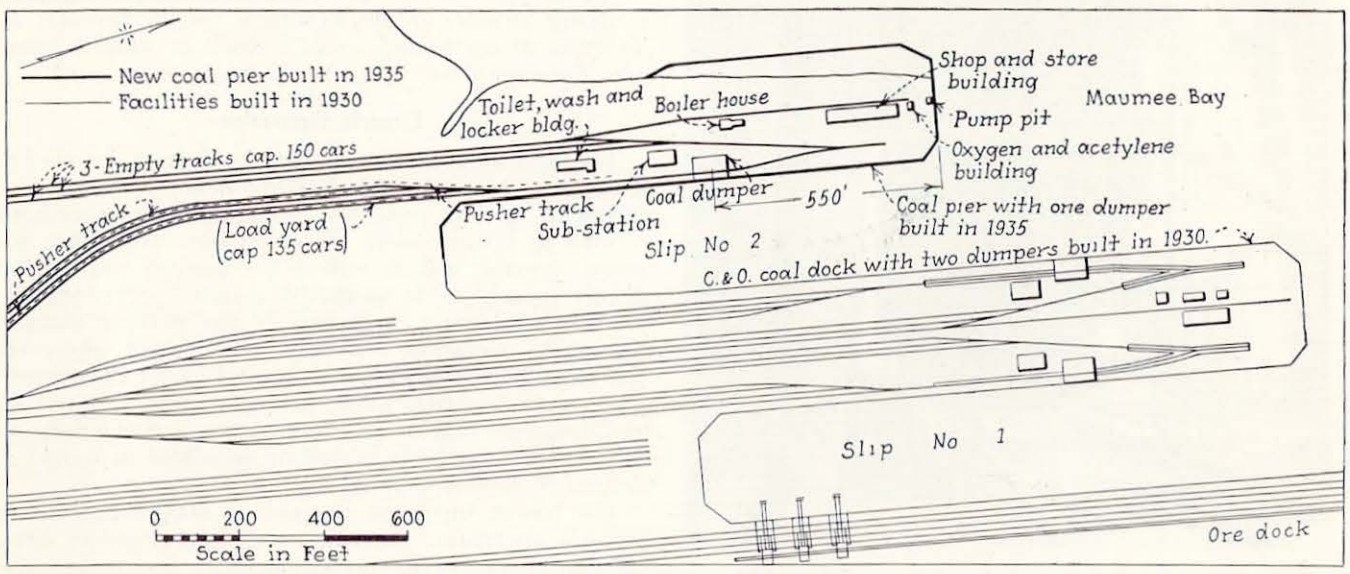
To prevent degradation of the coal, the dumper is provided with a car curtain which fits down over the top of the car as dumped and prevents the coal from making a direct drop as it passes from the car onto the apron. This curtain, which is located directly above and in conjunction with the car clamping mechanism, consists essentially of a box girder longitudinally over the cradle, to which are attached a series of five curved doors. These



The Kick-Back, Shown, and the Empty Car Run-Off Trestles Are Preframed Creosoted Structures

doors, each of which is individually motor-operated through a rack mechanism, rise and fall in vertical planes, extending upward, or open, when the cradle is in its vertical position, and lowering over the top of the car as the cradle is rotated to its dumping position. The entire operation of the curtain doors is synchronized with the dumping of the cars, so that at no time can the coal move from the cars in other than a narrow stream between its lower edge and the lower edges of the doors.

In addition to this device for preventing the abrupt drop of the coal as it leaves the car, care is taken in passing the coal over the pan and through the chute in a vessel to minimize movement between the particles of



General Layout Plan of the C. & O. Coal Handling Facilities at Presque Isle, Showing in Heavy Lines the New Coal Pier Constructed in 1935, and Some of Its New Supporting Tracks

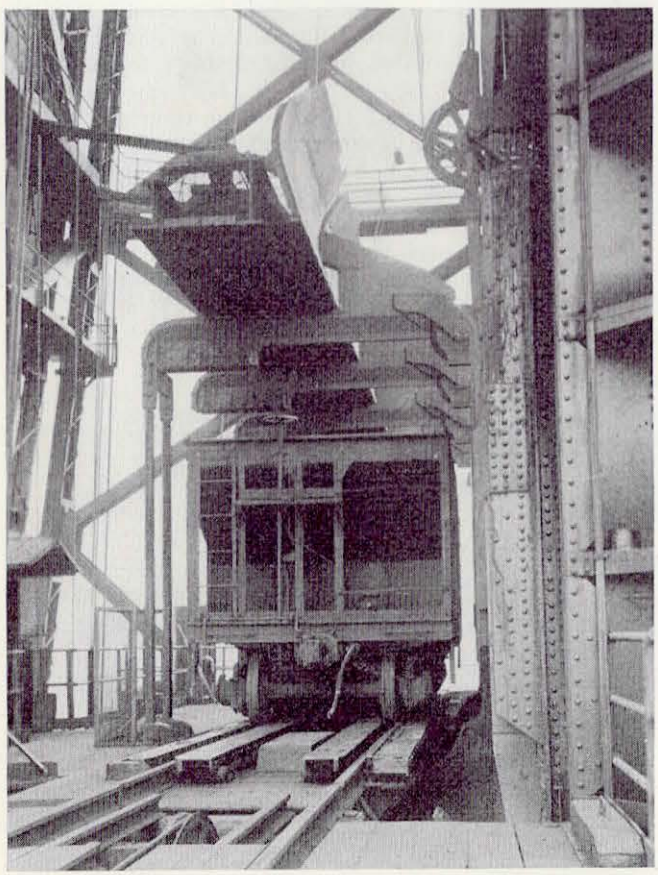
coal. After the chute and pan have been filled initially in the handling of a shipment, they are kept full, coal being released from the bottom of the chute into a boat only as additional coal is dumped from cars onto the upper part of the pan. Thus, the entire movement of coal from cars into a vessel is essentially a sliding one.

The bottom of the chute, which can be raised and lowered according to the height of coal in a boat, and which can be moved laterally across a hatch to permit loading uniformly, is equipped with a Doyle trimmer. By means of this device, which has twin motor-operated gates, coal can be trimmed fore and aft over a considerable area in any hold or compartment without manual assistance and without moving the boat.

Operation of the Dumper

At a point about 200 ft. from the dumper, where the load track starts up an incline of 12.6 per cent to the dumper cradle, the cars are stopped over a barney pit, where a disappearing-type barney, operated by cables and an electric hoist under the control of a barney operator on the dumper, engages the rear of the cars, one at a time, and pushes them up the incline to the dumper cradle. In the movement of the cars up the incline, the coal is wetted down to the degree desired by means of an automatically operated spraying system, which discharges a pre-determined amount of water over the top of the coal. The water spraying arrangement employed, which incorporates several features of interest, will be referred to later in greater detail.

As a car is moved onto the cradle by the barney, it is slowed down and stopped in correct position by means of a nine-section pneumatic car retarder controlled by the barney operator from his cab on the tower directly at the approach end of the cradle. Upon receipt of a signal from a car spotter on the cradle, who checks the location of the car and insures that it is ready to be raised, the barney operator throws a control lever which starts the cradle on its upward movement. As the cradle begins to rise, the movable platen on its deck, carrying the track rails, moves automatically toward the vertical dumping side of the cradle until the side of the car comes in contact with steel-faced wood buffer blocks attached to the cradle frame. This arrangement gives the side of the car full support while being rotated, regardless of its width.



A Car Spotted on the Dumper Cradle—Note Car Retarders on the Platen, the Car Clamping Device, and the Car Curtain With Doors Raised

As the car is raised, an adjustable clamping mechanism makes contact with its top face and holds it tight to the rails while being dumped. During the dumping operation, which is started and completed automatically, the five-door car curtain, preventing the abrupt fall of the coal, comes into full play.

While the entire operation of raising, rotating and lowering the cradle is automatic after being started by the barney operator, it is at all times under the full control of a cradle operator, who is located in a control room at a point in the tower where he has an unobstructed view of the cradle movement and of the flow of the coal from the cars. This operator, who can raise and lower the height and slope of the pan and slow down or stop the rotation of the cradle as may seem desirable for the most advantageous flow of the coal under varying conditions, constantly watches the discharge of the coal from the cars. In addition to regulating the discharge of coal as may be necessary, this operator also observes the entire operation from above to insure against any possible mishap. For example, as each car is raised, he checks the position of the car clamps to insure that they are in proper engagement with the top of the car, and he is on the lookout for foreign objects in the car which might damage the dumper or interfere with the flow of the coal. A third operator, located in a cab at the lower end of the pan and upper end of the chute, controls the flow of coal into the boat.

During the return of the cradle to its lowest level, the clamps holding the car are released automatically and the rails of the platen supporting the car line up automatically with the approach and run-off rails. When the car has come to full rest, the barney operator permits the approach of the next loaded car, which, in assuming its position on the cradle, pushes off the empty car. The empty car, with a rider, rolls down the 7.2 per cent grade of the run-off track toward the end of the pier, through a spring switch, to the kick-back, which reverses its direction of travel and sends it back at suitable speed over the empty car return track to the empty yard.

Electric Operation

The operation of the dumper is entirely by electric power, except for minor auxiliary details in connection therewith, and is provided throughout with automatic control to insure safety of operation. To reduce the power demand and to relieve the hoisting mechanisms of unnecessary work, adjustable counterweights are employed to balance a large part of the working loads in the cradle operation, but only to the point where the operators have full electrical control of all movements. The counterweights, which are of cast iron, travel up and down the rear of the tower frame and are designed so that they can be increased or decreased in weight as desired to meet operating conditions.

The power supply at the pier is 6600-volt, 3-phase, 60-cycle alternating current, which is changed to direct current by two 6600-volt synchronous motor-generator sets located in a sub-station directly alongside the dumper. Two 500-hp., 475-volt motors, with Ward-Leonard

control, drive the cradle hoist drums; two similar motors operate the barney hoist machinery; and one 275-hp., 230-volt motor operates the pan hoist mechanism. Six other motors, from 150 hp. to 4¼ hp. capacity, supply power to operate the pan elevating screws, to raise and lower the chute, and to operate the twin gates of the coal trimmer.

Features of the electrical installation include the automatic character of many of the operations, with speed control or limit switches wherever necessary to insure the safety of operation; the interlocking of the barney operation with the cradle so that barney movement will stop automatically near the top of the approach incline if the cradle is in other than the fully seated position with its rails properly aligned, ready to receive another loaded car; and the communication systems about the pier and the dumper to facilitate the coal transfer operations and to minimize the possibility of accident from any cause.

The communication systems on the pier include a loud speaker system connecting the car checker's office, the coal pier foreman's office and the three dumper operator's cabs, and providing a portable loud speaker for use on the decks of boats; a buzzer system joining the different operator's cabs for use in case of failure of the loud speaker system; a siren system, to warn of danger and to call the foreman when out of his office and about the coal docks; and a telephone system with phones in the car checker's office, the foreman's office, the machinery house and the sub-station. Through these various systems of communication, special or general instructions can be passed along promptly, delays of any character are minimized, and safety of operation is more thoroughly assured.

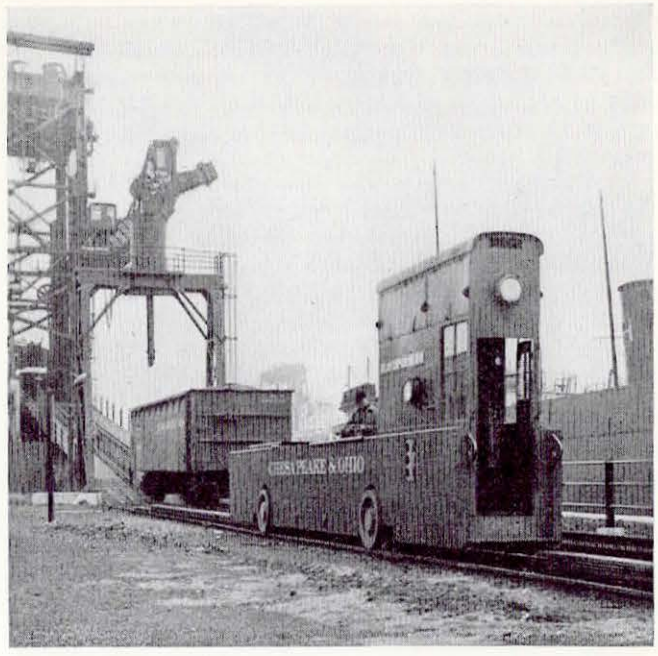
Special Features

The new dumper has a number of special features, which, while not entirely new or exclusive to itself, are worthy of mention. One of these is the electrically-operated, 10-ton, full-circle crane, with a 52-ft. boom, which is mounted on top of the dumper tower for the future hoisting of any heavy machinery, parts or cable in connection with repairs or replacements. Another is the provision of a permanent repairman's platform beneath the coal pan to facilitate such repairs to the pan bottom as may be necessary from time to time, with full safety for the repairmen. Still another feature is the safety guards or railings which surround all platforms, walkways, stairs and ladders on the dumper to prevent accidents to the men in their normal movements or in maintenance or repair operations.

Of interest also is the fact that water at 50-lb. pressure and compressed air at 85-lb. pressure are piped to the top of the tower with outlets at various levels, for washing down the tower and the dumper mechanisms periodically, and for the operation of pneumatic repair tools. Welding current is also supplied to the tower, with outlet plugs at four levels, to permit prompt repairs by welding if such should become necessary.

Large Storage Yards

The three coal dumpers at Presque Isle are supported by load and empty yards in the immediate vicinity, which have a capacity of 5,400 cars. An additional supporting yard at Walbridge (Toledo) has a capacity of 7,870 cars, giving a combined capacity of the yards at Presque Isle and Walbridge of 13,270 cars. The yards at Presque Isle include four new load tracks with a total capacity of 105 cars, and three new empty tracks with a total capacity of 207 cars, these new tracks serving the new



One of the 40-Ton Electric Pushers, Which Has Just Spotted a Car at the Foot of the Barney Pit

dumper exclusively. The new load tracks, which lie immediately south of and in general line with the dumper, are supplemented by three narrow-gage pusher tracks, which are equipped with 40-ton third-rail-operated car pushers for moving cuts of cars directly to the barney pit. Each of the pushers, which will handle up to 25 cars at a time, is equipped with a retractable side pusher arm, which, when in pushing position, engages the near rear corner of the end sill of the last car in a cut.

Two of the car pushers operate the full length of the new load tracks, while the third operates only at the north end of the tracks and pushes all cars over the lead to the dumper, directly to the lower end of the barney pit. As each car is spotted in correct position to be pushed by the barney, it operates a track circuit breaker which lights a light in the barney operator's house in the dumper tower, indicating to the operator that another car is ready to be pushed up the approach incline.

The approach incline, with its barney pit, is a reinforced concrete trestle-like structure with transverse piers resting on timber piles, while the empty run-off incline from the car dumper, and the kick-back, are creosoted timber structures with pile bents. A feature of the approach incline is that it incorporates a barney inspection pit within the barney operating pit, in order to facilitate inspection of and repairs to the barney. The feature of special interest about the run-off incline and kick-back trestles is that they were preframed at the road's treating plant before treatment. In connection with the construction of the timber trestles, all cuts necessary in the field were treated with two coats of hot creosote oil; all holes drilled in the field were pressure-treated with hot creosote; and all piles and posts were capped with heavy prepared roofing to prevent the absorption of water.

Electric Eye Controls Water Sprinkler

The coal sprinkling arrangement at the pier, which was provided to minimize the scattering of coal dust while loading boats and later while unloading them at their destinations, is located directly at the foot of the barney pit. In this arrangement, a 1,000-gal. steel storage tank is mounted directly over the load track on a structural steel bridge, and is equipped with a twin-nozzle spraying head at the bottom of a 12-in. telescoping

discharge pipe. The nozzles, which are in line with each other directly over the center lines of cars moved over the track, are short lengths of 8-in. steel pipe, the lower ends of which were flattened to form 4-in. by 10¼-in. orifices in order to produce a fan-like discharge over the surface of the coal.

Operation of the sprinkler system is entirely automatic, the discharge of the water being controlled by a solenoid-operated gate valve, which is actuated by a photo-electric cell arrangement, the component parts of which are mounted on the tower legs of the water tank bridge. When a car being pushed up the incline intercepts the beam of light projected across the track from the light source to the photo-electric cell, the solenoid-operated valve responds immediately, causing water to be discharged over the coal in the car until the light beam is again unobstructed by the passage of the car, when the valve closes, shutting off the water.

Through the telescopic feature of the discharge pipe, the discharge nozzles, which are normally at a level approximately 4 ft. above the tops of the cars, are lowered by the pressure of the water while discharging to approximately 24 in. above the tops of the cars. This arrangement, which can be adjusted to fit the type and size of cars being handled, keeps the nozzles clear of the highest cars which might be pushed over the track, while lowering them under normal conditions to the height most effective for wetting the coal with a minimum of splashing.

In the system employed for wetting the coal, it is intended that the water applied over the top of a car shall filter down through the coal in the body of the car. A surplus of water in the coal, which is evidenced by any considerable dripping from the bottom of a car, is avoided when possible, but any surplus which may pass through a car falls in the barney pit, from which it is drained off through suitable outlets.

Entire Pier Floodlighted

In addition to the various facilities mentioned for use in the direct unloading of coal, the new coal pier is provided with four modern one-story fireproof buildings for various auxiliary purposes and is completely equipped with floodlights for night operation. One of the buildings at the pier, 177 ft. long by 30 ft. wide, is a repair shop and stores building; another, 68 ft. long by 18 ft. wide, houses the boiler plant for steam heating purposes; a third building 70 ft. long by 40 ft. wide, houses the main power boards, transformers and motor generator sets; and the fourth building, 83 ft. long by 25 ft. wide, houses a car checker's office, a boat captain's office, and toilet, wash and locker facilities for all employees on the pier. All of the buildings are modern fireproof structures, with buff face brick, steel sash and concrete floors, and are equipped with thermostatically-controlled unit-type heating systems and the most up-to-date sanitary facilities.

For night operation at the pier, which is as common as day operation, the pier and its supporting yards are equipped with five batteries of 1,000-watt floodlights. Two of these batteries, with five lights each, are located at strategic points between the new load and empty yards; a battery of four lights located on top of the dumper tower illuminates the dumper approach incline and barney operation; another battery of four lights, mounted on a tower near the far end of the kick-back, illuminates the empty car return tracks and the entire north end of the pier; and a battery of two lights, mounted on top of the boiler house, provides cross illumination throughout the most intensively used part of the pier area. These large capacity floodlights are supplemented by smaller floodlights and by normal lighting circuits and fixtures about the coal dumper and at other points where adequate direct light is required for safe and efficient operation.

The new car dumper at Presque Isle, like the two other dumpers at this point, was furnished and erected by Industrial Brownhoist Corporation, Bay City, Mich. The car pushers were furnished and installed by the Atlas Car & Mfg. Co., Cleveland, Ohio. The trackwork and the construction of the dumper foundation were handled by railway forces. All of the work was planned and carried out under the direction of C. W. Johns, chief engineer of the Chesapeake and Ohio, assisted by C. Miller, bridge engineer. The work in the field was done under the supervision of C. A. Whipple, district engineer.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading reached another new peak for the year in the week ended October 3 with a total of 819,126 cars, an increase of 12,056 cars as compared with the week before and an increase of 113,152 cars, or 16 per cent, as compared with the corresponding week of last year. All commodity classifications except grain and grain products showed increases over last year's figures, but miscellaneous freight, grain and grain products, forest products, and ore showed decreases as compared with the week before. The summary, as compiled by the Car Service Division of the Association of American Railroads, follows:

Revenue Freight Car Loading

For Week Ending Saturday, October 3

Districts	1936	1935	1934
Eastern	163,158	147,796	130,765
Allegheny	164,467	129,560	109,203
Pocahontas	56,377	47,587	43,781
Southern	114,511	101,733	88,606
Northwestern	134,893	114,604	97,810
Central Western	120,305	108,310	105,928
Southwestern	65,415	56,384	56,313
Total Western Districts	320,613	279,298	260,051
Total All Roads	819,126	705,974	632,406
Commodities			
Grain and Grain Products	31,876	37,535	31,764
Live Stock	20,519	19,585	29,782
Coal	158,457	128,457	118,444
Coke	10,616	7,821	5,612
Forest Products	34,781	32,008	22,371
Ore	57,865	33,748	19,272
Merchandise L.C.L.	172,632	167,327	165,108
Miscellaneous	332,380	279,493	240,053
October 3	819,126	705,974	632,406
September 26	807,070	629,935	646,084
September 19	789,510	706,820	644,498
September 12	699,859	699,786	647,485
September 5	764,680	591,941	563,883
Cumulative Total, 40 Weeks	26,997,718	23,818,058	23,994,858

Car Loading in Canada

Car loadings in Canada have continued to increase, amounting to 60,278 for the week ended October 3, or 443 cars over the previous week and 1,914 cars over the loadings in 1935, according according to the compilation of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
October 3, 1936	60,278	24,231
September 26, 1936	59,835	23,134
September 19, 1936	59,661	22,675
October 5, 1935	58,364	22,962
Cumulative Totals for Canada:		
October 3, 1936	1,849,300	916,922
October 5, 1935	1,775,112	846,737
October 6, 1934	1,752,260	867,802

Communication Officers Report Progress

Convention of Telegraph and Telephone Section depicts rapid progress in improving facilities

DEMONSTRATION of recent developments of wire-carrier apparatus by means of which additional circuits can be superimposed on existing wires, was the outstanding feature of the annual convention of the Telegraph and Telephone section, A. A. R., held at the Mayflower Hotel, Washington, D. C., on October 6, 7 and 8. H. C. Chace, superintendent of telegraph of the Atchison, Topeka & Santa Fe, was chairman of the meeting, which was attended by 266 members, the program including reports of the seven standing committees and four technical papers.

In an address before the convention, J. M. Symes, vice-president of the Association of American Railroads, stated that communication officers were poor advertisers in that they had been negligent in informing other railroad men concerning the rapid developments in communication equipment and in its adaptation in improving railroad communication service. Mr. Symes stated, however, that the railroads cannot be satisfied without continued development in telegraph and telephone equipment. He explained the ever-increasing need for communication as an aid in expediting railroad service to meet the competition with other forms of transportation. This can be accomplished, he concluded, by adhering to the slogan of the Telegraph and Telephone section, i.e., satisfactory and uninterrupted communication service.

Research and Development

The Committee on Research and Development presented several specifications, including those with reference to amplifiers and loud-speakers for railroad telephone train dispatching. Detailed explanations were offered of tests being made of systems for communication to or from moving trains, as well as from the head-end to the rear-end of trains. The Pennsylvania is conducting tests of front to rear communication, utilizing equipment of the Union Switch & Signal Company, the General Electric Company and the Radio Corporation of America, but the present status is such that a detailed report on results is not yet available. The Radio Corporation of America is engaged in development work on front to rear communication, utilizing ultra-high frequency equipment. The Union Switch & Signal Company is developing an inductive system for front to rear communication. While service tests have been made with satisfactory results, development work is still in the laboratory stage.

Following the presentation of this information, there was considerable discussion of these subjects. It was recognized that two-way telephone communication between the engineman and conductor of long freight trains, especially in mountainous country, would be an advantage, provided such equipment could be installed and maintained at a reasonable cost. However, one superintendent of telegraph, who was formerly a dispatcher, questioned the practical need for communication between moving trains and the dispatcher. It was granted that such a system might be used, rarely, to advantage in emergencies, but in his opinion, the cost would not be justified because present methods of directing train movements are adequate. A representative of the Canadian National concurred in this opinion, explaining that when his road had a test installation of such a system in service on a passenger train, little use was made of it for communication between the conductor and dispatcher.

The next item presented was an explanation of the radio telephone system for dispatching railroad-owned tugs in the New York harbor district. This system, placed in service on August 20, provides two-way telephone communication between moving tugs or between tugs and the dispatcher's office. Several tugs belonging to the Pennsylvania have been so equipped, and the immediate result was more efficient utilization of the tugs.

The use of amateur radio stations for transmission of messages when railroad communication lines are destroyed by floods or sleet storms was discussed at length. An excellent example of this service was that rendered by amateurs during the hurricane in Florida in September, 1935, when long sections of the Florida East Coast Railway's line was destroyed. A representative of the Canadian Pacific described an instance where two amateur stations were used for several days to handle messages and direct train operations when a storm destroyed a section of pole line near Montreal, Que. In another instance, when the communication lines between Edmonton, Alta., and Vancouver, B. C., were out of service for 10 days, amateur stations were used to transmit important messages, especially satisfactory results being accomplished between Kamloops, B. C., and Vancouver. It was explained that there are about 45,000 amateur stations represented by membership in the American Amateur Radio League. J. L. Niesse of the New York Central suggested that each railroad secure information as to the location and equipment of each amateur station along its lines so as to be ready to call for emergency service.

Papers on Carrier Systems

As a part of the information on research and development, two papers were presented, explaining carrier systems. In brief, a carrier system of communication includes sending and receiving apparatus similar to that employed in radio, except that the energy is transmitted by being superimposed on existing line wires which may continue to be used for regular telephone or telegraph circuits.

E. R. Shute, general superintendent of traffic of the Western Union, explained the design and application of the Western Union portable telegraph carrier system. Each set weighs about 75 lb. as packed in a trunk ready for shipment from headquarters to any point where addi-

tional communication is required on account of special movement of traffic or in case certain pole line circuits are destroyed. The Western Union is using these portable carrier sets to handle peak message traffic where line circuits are inadequate. In the winter the sets are used in Florida, while they are shipped north to Maryland in the spring to handle message traffic out of the Maryland vegetable area, and later are moved on to Maine, when traffic is increased on account of the summer tourist business. The equipment can be used by a railroad to handle peak or emergency traffic. The approximate cost of rental and maintenance of each set is $200 annually.

A paper explaining the carrier telephone for railroads was presented by H. A. Affel, toll transmission development director of the Bell Telephone Laboratories, who demonstrated the operation of the apparatus on display. This equipment has been thoroughly developed and tested so that it is available for the use of railroads.

New Systems in Use

The efficient operation of communication facilities was covered by an extended report of the Committee on Communication Plant Operations. Among some of the special instances explained was that of sending waybills by telegraph for overnight fast merchandise service, developed by the Southern Pacific. The ultimate success of the plan depended upon transmitting the waybills by telegraph, thus permitting the patron to ship merchandise as late as 5 p.m. in San Francisco, Cal., and have it available to his customers in Los Angeles shortly after 9 o'clock the following morning. Two plans were outlined briefly. First, a multiplex printer channel was available between San Francisco and Los Angeles. Therefore, no capital expense was involved with the exception of purchasing a ditto machine. As fast as the shipping receipts or the bills of lading are available at the outbound freight house, they are extended and rushed by messenger to the general telegraph office. The waybill is compiled in tape for transmission by a multiplex printer and is received at the point of destination on a page printer equipped with continuous roll paper and heavy hectograph ribbon. The roll paper copy is placed on the gelatine bed of the duplicating machine, and the seven necessary copies are made. The received waybills, in seven copy sets, are sent to the freight house by messenger where they pass to the various departments, including the truck dispatcher who tabulates the tonnage for the various delivery zones and calls the necessary trucks. All of this is done in advance of the train's arrival, thus permitting prompt delivery and avoiding a possible delay of from 3 to 4 hr. for an 8 to 10-car train of merchandise.

At the time overnight merchandise service was established between San Francisco and Oakland, and the San Joaquin and Sacramento valleys, teletype sets were installed in the San Francisco and Oakland freight houses; also at the points of destination, thus providing for direct keyboard transmission from freight house to freight house. The shipping receipts, as soon as extended, are passed to the teletype clerk who compiles the original waybill, automatically reproducing the waybill at the point of destination, tabulated in proper form to be passed over the gelatine roll and the necessary copies run off. This arrangement is preferable inasmuch as it provides for direct transmission from freight house to freight house, but it is, of course, economical to adopt plan No. 1 when a multiplex channel is available. At the present time, the Southern Pacific is handling approximately 1,800 waybills by these methods each night, and if the shipping receipts are available for continuous operation, an average of 60 waybills per hour can be obtained from tape operation and 80 per hour from direct keyboard operation.

Other Technical Subjects Discussed

The program included a paper entitled Simplified Duplex Apparatus for Short Telegraph Lines by R. V. Morgenstern of the Western Union Telegraph Company, and a paper on Recent Developments Having a Bearing on Inductive Interference between Power Lines and Communication Circuits by H. R. Huntley of the American Telephone & Telegraph Company. These two papers, as well as the reports of several of the standing committees, were devoted to the technical details of the design, application and maintenance of circuits and equipment for railroad communication facilities.

Perhaps the outstanding report of general interest was that of the Committee on New Devices and Material, which includes drawings and explanations of 58 new products in the railroad communication field. New methods of pole treatment, plug terminals for wires, magnetic telephone systems, intercommunication systems, new types of carrier current telegraph, relays, wire joints, rectifiers, etc., were among the more important new developments.

Committees on Construction and Maintenance

The results of a study of the effect of wind pressure on pole lines were included in the report presented by the Committee on Construction and Maintenance—Outside Plant. The important matter of proper construction of lines crossing the tracks of railroads was dealt with in a new specification. Fire hazards, protection of moving vehicles and the permits and notices are all important considerations. New specifications were presented with reference to pressure treatment of southern pine poles and linemen's climbers and straps. Also, a set of instructions governing the maintenance, inspection and electrical testing of linemen's rubber gloves was presented by this committee. A report relative to the work being done by railroads to protect against electrolysis stated that there has been no marked change in the mechanics of methods of protection against electrolysis since the advent of the use of forced drainage.

The Committee on Construction and Maintenance—Inside Plant—presented several new specifications, including those on three types of lead-covered office cable, dry cells, power supply units of the copper-oxide and electrolytic types, and a general explanation of printing telegraph apparatus and its application to railroad service. Diagrams and explanations of key-operated testing circuits were presented, as were also specifications for message racks, polar relay test sets and a set of safety rules and instructions for first aid to injured employees.

At the closing session, the secretary announced the election of officers for the Telegraph and Telephone Section for the ensuing year as follows: Chairman, W. A. Jackson, superintendent of telegraph, New York Central, Detroit, Mich.; first vice-chairman, D. E. Galloway, assistant vice-president, telegraph department, Canadian National, Toronto, Ont.; and second vice-chairman, G. R. Stewart, telegraph and telephone engineer, Illinois Central, Chicago.

Chicago to New York, Three Hours.—The American Airlines' Flagship "Eagle" arrived at Newark, N. J., airport on Monday afternoon, October 12, at 4:12 o'clock, having made the flight from Chicago in 2 hr. 58 min. 35 sec. The plane carried 17 passengers and had a crew of three. It was flown mostly at an altitude of 11,000 ft. The distance is calculated at 776 miles and the rate of speed 260 miles an hour.

Investigation of Freight Forwarding

Hearings in connection with I.C.C. probe of consolidators' activities opened at New York on October 13

HEARINGS in connection with the Interstate Commerce Commission's investigation of freight forwarding opened at the Pennsylvania Hotel, New York, on October 13 before Examiners R. N. Trezise and C. A. Rice, the former presiding. I. C. C. Attorney William J. Walsh is directing the presentation of evidence gathered in field investigations by members of the commission's staff. Opening sessions covered the organization, control and operations of forwarding companies as well as the relations of New England railroads with these freight consolidators.

The first witness was R. B. Sturm, special agent of the I. C. C. Bureau of Inquiry, who stated that while there are many forwarding companies operating in this country, the three principal ones are the Universal Carloading & Distributing Company, the National Carloading Corporation, and the Acme Fast Freight, Inc. Mr. Sturm proceeded to describe these three in turn.

Universal Car Loading and Distributing Company

The Universal Carloading & Distributing Company, he said, is a Delaware corporation, the entire capital stock of which is owned by the United States Freight Company, also a Delaware corporation, which operates only as a holding company. In addition to the Universal Carloading & Distributing Company of Delaware, it has six other wholly-owned forwarding subsidiaries as well as investments in truck lines.

The United States Freight Company, a notation by Mr. Sturm on one of his exhibits shows, has outstanding 299,640 shares of no-par stock. The Linden Securities Corporation owns 163,676 shares of this stock. Linden was described on October 6, 1933, in a letter from G. Metzman, manager of freight transportation, New York Central, to J. R. Turney, then director of Coordinator Eastman's Section of Transportation Service, as a corporation having 100 shares of voting stock, held by individuals who are employees of the Guaranty Trust Company of New York and who are directors of the corporation. "The Corporation," Mr. Metzman added, "was formed to acquire the stock of the United States Freight Company and our understanding is that it has substantially no other assets."

The journey of the 163,676 shares of United States Freight Company stock into the portfolio of Linden was traced by Mr. Sturm in testimony and by a series of exhibits. One exhibit showed that on various dates from October 30, 1929, to December 23, 1931, the New York Central made advances aggregating $15,314,759.53 to Merchants Despatch, Inc. Minutes of the latter's board meeting of February 1, 1930, show that an agreement was entered between Merchants and the L. C. L. Corporation whereby the latter pledged to Merchants 128,000 shares of U. S. Freight stock as collateral for a loan of $13,703,655,53, the interest to be equal to cash dividends declared on the deposited stock. The agreement also provided that any additional U. S. Freight stock acquired by L. C. L. either by stock dividends or exercise of rights (Merchants advancing necessary funds to exercise rights) would be added to that held by Merchants as collateral. It was further stipulated that Merchants would have the right to acquire at any time prior to February 1, 1940, or prior to an extended period of five years therefrom, the U. S. Freight stock pledged with it by L. C. L. at a sum equivalent to the face amount of the loan and unpaid interest. Other provisions related to possible repayment by L. C. L. and ways of protecting Merchants' option in such an event.

Minutes of the March 22, 1932, meeting of Merchants' board show that by then L. C. L. owed the former "in excess of $15,000,000" for which there was pledged as collateral 163,676 shares of U. S. Freight stock. It was also revealed in these minutes that L. C. L. had advised of its desire to dispose of the deposited stock and asked Merchants to find a purchaser. The latter then communicated with the Guaranty Trust Company of New York, asking that bank to find a purchaser of the deposited U. S. Freight stock who would also assume the undertakings of L. C. L. under the existing agreement. Accordingly, the Linden Securities Corporation acquired the U. S. Freight stock from L. C. L. and assumed obligation for the latter's loan from Merchants. At the September 28, 1932, meeting of Merchants' board it was proposed that Merchants find a purchaser of all its rights under agreements with Linden, such purchaser to assume Merchants' indebtedness to the New York Central in the sum of $15,314,759.53. Minutes of the November 29, 1932, meeting of the Securities Corporation of the New York Central Railroad, show that the latter assumed Merchants' agreement with Linden on the foregoing basis.

Control of Universal

The set-up resulting from the foregoing was explained by Mr. Sturm in a notation on one of the exhibits as follows: "The Linden Securities Corporation owns 163,676 shares of stock of the United States Freight Company. The latter company has 299,640 shares, no-par value, outstanding. The Linden Securities Corporation, in which the New York Central has no interest, direct or indirect, owes the Securities Corporation of the New York Central Railroad $15,314,759.93, for which debt the 163,676 shares of the United States Freight Company are pledged as collateral. All of the stock of the Securities Corporation of the New York Central Railroad is owned by the New York Central Railroad Company. The Securities Corporation of the New York Central Railroad has an option to acquire for itself or its nominee the United States Freight Company stock owned by the Linden Securities Corporation on or before February 1, 1940, with provision for extension of such option for the further period of five years."

Mr. Sturm next described in a general way the nature of the Universal Carloading & Distributing Company's operations. The tariffs distributed to customers, the witness said, "are said to be generally adhered to" although he had information as to special concessions to large shippers and departures in times of rate wars between forwarders. The Universal, it was brought out, makes extensive use of motor trucks not only in col-

lection and delivery service but also to and from concentration points on railroads.

Questioned by Mr. Walsh as to Universal tariffs, Mr. Sturm explained that, except for those now filed with the I. C. C. Bureau of Motor Carriers, these so-called tariffs are not filed with any regulatory body. As to rate cutting, the witness said he was unsuccessful in obtaining access to Universal files and thus was unable to testify as to the extent of such departures. In a previous investigation in 1930, when he had access to the files, Mr. Sturm found that "hundreds of customers" were obtaining concessions; and also that commissions had been paid to industrial traffic managers. He is informed that the latter practice has been stopped. In his present investigation Mr. Sturm, in lieu of access to the files, was given by H. W. Burnham, vice-president of Universal, specific examples of departures from the published rates. As to the routing of Universal freight, Mr. Sturm presented an exhibit showing cars shipped in each year from 1932 to 1935. Out of a total of 153,683 cars in 1935, the New York Central received 59,705. The Lehigh Valley was next with 15,777 cars and the Baltimore & Ohio third with 13,645. The Pennsylvania got 126 cars; the Erie, 61; the Chesapeake & Ohio, 2; the Nickel Plate, 6; and the Pere Marquette, 25. Cars in the tabulation were counted for each railroad over which they moved.

The Universal, Mr. Sturm added, also handles a "tremendous volume" of line-haul motor traffic. Its facilities usually consist of space in railroad freight stations of roads to which it gives line-haul traffic, its investment in physical property being small as compared to its total assets. He did not have the figures for Universal, but Mr. Sturm said that the United States Freight Company reported a 1935 gross of $39,985,000.

National Carloading Corporation

Coming to the National Carloading Corporation, Mr. Sturm explained that this is a Delaware corporation formed in 1931 to acquire the forwarding business of the National Freight Company (then owned by the Pennroad Corporation), Commerce Freight Company (a Wabash affiliate) and the Standard Carloading Corporation (a Van Sweringen affiliate). These acquisitions were effected by distribution of National Carloading Corporation stock and Standard became a holding company. Prior to that time Standard had been financed by the sale of 1,350 shares of its $100-par stock—450 shares each at $2,000 a share to the Erie Land & Improvement Company, an Erie subsidiary; the Lake Erie Coal Company, Ltd., a Pere Marquette subsidiary, and the Virginia Transportation Corporation, a Chesepeake & Ohio subsidiary. After its conversion into a holding company Standard, the minutes of its board's meetings show, proceeded from time to time to acquire the National Carloading Corporation stock held by the National Freight Company (the Pennroad affiliate) and Toledo Central Station Railway Company, a Wabash affiliate. Thus a chart introduced by Mr. Sturm shows that Standard now owns 86 per cent of National Carloading Corporation's stock; also, 58 per cent of U. S. Truck Lines, Inc., which in turn controls some 19 trucking companies. Other exhibits trace loans from the owning railroads to their subsidiaries which in turn control Standard. All of these loans, Mr. Sturm said, are still outstanding.

Mr. Sturm was not afforded the opportunity of examining any records of the National Carloading Corporation. In lieu of granting such permission, E. M. Dillhoefer read for Mr. Sturm certain excerpts that Mr. Dillhoefer thought would interest the I. C. C. agent. What he didn't read, Mr. Sturm said, was what Mr. Dillhoefer said "would not interest me." Mr. Sturm also talked with C. E. Denney, president of the Erie, who said that his road was forced by competition into the forwarding business and, being late in the game, had to get an organization together in a hurry. Also, Mr. Denney said, these matters had been handled in the main by the late J. J. Bernet and his son, W. G. Bernet, who is vice-president of Standard.

Like the Universal, Mr. Sturm said the National "adhered generally" to its rates, although it, too, made special concessions for the same reasons volume of business and competition. He was advised by Mr. Dillhoefer that "when competition requires it" National rates are cut on short notice, and special rates are made for large shippers. Also, Mr. Sturm said, companies now merged into National in the past did the same as Universal with respect to allowing commissions to industrial traffic managers.

A statement on cars forwarded by National during the year ended April 30, 1935, shows that out of a total of 71,964 cars (uncorrected for duplications due to cars moving over more than one road), the Erie received 19,376 cars; the Nickel Plate, 10,374; and the Pere Marquette, 7,868. The C. & O. is not listed separately on this statement furnished by Mr. Dillhoefer which carries an item "various railroads, revenues $25,000 or less."

G. W. Raus, attorney for the I. C. C. Bureau of Inquiry, concluded the presentation in connection with National. He testified briefly concerning a field investigation he had made at the Erie, C. & O., Pere Marquette, and Nickel Plate offices in Cleveland, Ohio. Mr. Raus presented an exhibit containing material from the files of F. M. Whittaker, vice-president of the C. & O., P. M., and Nickel Plate, and from those of D. L. Gray, vice-president of the Erie. This exhibit indicated that these officers formerly received monthly summaries of traffic carried for the account of National. This report, which was quite detailed, has been discontinued.

Acme Fast Freight, Inc.

Returning to the stand for his testimony as to the third of the three principal forwarders which he listed at the outset—Acme Fast Freight, Inc.—Mr. Sturm said that he had been refused access to this company's records and thus he made no investigation of its organization and operations. Here Mr. Walsh presented as an exhibit the testimony offered by William J. H. McEntee, vice-president and treasurer of Acme, in a previous hearing on an application by Acme under the motor carrier act (BMC 2200). This testimony of Mr. McEntee explained Acme's operations, and also revealed that its stock and that of its affiliates is owned entirely by T. A. B. Inc., which in turn is controlled by Thomas A. Bradley, president of Acme. Mr. Bradley owns 51 per cent of the T. A. B. Inc. stock as an individual and 49 per cent as trustee of an express trust, which "is entirely a family affair." No railroad or other carrier is interested directly or indirectly, Mr. McEntee had testified, and Mr. Sturm said also that there was no tie-up of which he was aware.

The transcript of Mr. McEntee's testimony further revealed that Acme's estimated gross revenue for 1935 was about $25,000,000. In that year it originated about 600,000 tons of freight. This business, he next pointed out, was larger than the l. c. l. revenue freight originated on any railroad in the United States except the Pennsylvania.

Before turning his attention to New England rail-

(*Continued on page 567*)

Profit and Loss in Scrap Handling Operations*

Dismantling of equipment advocated and method of increasing the net income from sales outlined

By Charles E. Reasoner,
Scrap Dock Foreman, Missouri-Kansas-Texas, Parsons, Kan.

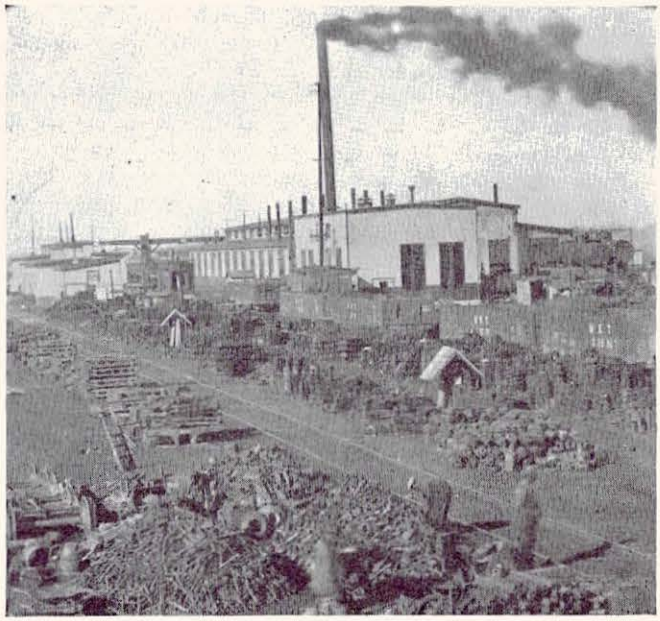
ALL railroads are endeavoring to modernize their equipment and facilities, and all of them are confronted with a vast accumulation of obsolete equipment and replacement parts, discarded materials which increase their regular run of scrap.

Each railroad should make periodic surveys of material on hand in and around its shops and enginehouses, storehouses, maintenance stores, reclamation plants and even scrap docks, to determine the true situation regarding its stocks of new material, obsolete material, rail stocks and material held at scrap value which has been set aside for possible future use or reclamation. The old material is usually stored out of doors and soon rusts and deteriorates until it is unfit for its original purpose, or unfit to be used in the manufacture of other materials. By making these surveys, the movements of material can be observed and the excessive accumulation of stagnant items avoided. Often material that has become valueless as a stock item should be scrapped, thus converting it into cash and in turn lowering the stock balance. Many times, rolling stock that has served its purpose and has become too light, unsafe, or in need of repairs in excess of replacement costs, is left standing until exposure has reduced the profit that might have been realized if the equipment had been dismantled when first pronounced unfit for service.

Centralized Operations

Railroads should establish a central plant and concentrate so far as possible all salvage and scrap there for final disposition. Old cars and locomotives should be accumulated near the central plant instead of leaving them scattered along the line. This will eliminate the expense of traveling forces of the moving of equipment in trains when it is finally written off. At a central plant, crews can be trained, and equipment and facilities, such as cranes, shears, automatic loading devices, cutting stations, etc., can be provided.

It has been the policy of the railroads to handle scrap with as little attention and as little expense as possible, and to sell it to scrap dealers at almost any price. If properly prepared and classified to meet the requirements of the mills and furnaces, scrap will command higher prices. All railroads should adopt the standard scrap classification or should use the standard classification to the extent that they are not penalized where they have an outlet for special classes of scrap at attractive prices. Railroads fortunate enough to be situated near mills or furnaces should take advantage of contacts with consumers and avoid unnecessary sorting or preparation. However, it is not fair to compare handling costs between those roads that are permitted classification exceptions through these contacts, with roads that must prepare their scrap so that it will pass the scrutiny of the scrap brokers.



The Scrap and Reclamation Plant of the M-K-T at Parsons, Kan.

Facilities for the proper economical handling of scrap are very important and should be given careful study. The unloading, sorting, preparing and reloading are perhaps the four most important phases of scrap handling and are worthy of considerable deliberation. A receiving or lead track should be provided on which all cars consigned to the scrap dock may be accumulated. A switch list should be prepared daily from the cars on this track and the desired locations indicated. Each scrap dock should have a track scale located at a suitable place so that all cars can be weighed, and a record prepared showing the number, contents, weight and class of each car. After the cars of inbound scrap are weighed, they can then be switched to tracks for unloading as indicated on switch lists. When listing the cars on the switch list, the loads should be inspected and all cars containing small scrap that requires little preparation and can be unloaded with magnets should be placed on one track, while cars containing salvage or scrap that must be torched or sheared, or must be unloaded with chains or cables, should be placed on another receiving track. By doing this the amounts of scrap

* From a paper awarded honorable mention in a contest conducted by the Purchases and Stores Division, A.A.R.

unloaded for the sorting gangs can be controlled and crane crews will not lose time changing from magnet to line.

Different kinds of small scrap should be unloaded into three different piles in the sorting yard; for example, car scrap often includes brake beams, superstructures, draft arrangements, etc., which make this kind of scrap the most difficult to sort. By unloading the locomotive scrap at a special location, it is easier to remove the larger pieces, such as driving springs, cylinder heads, smoke stacks, pilot beams, equalizer bars, etc., than it would be if all kinds of scrap were unloaded together. Track scrap, excluding rail, can be unloaded at another place and the handling simplified to a certain extent; for example, scrap, other than that to be included in No. 2 wrought can be sorted from the top and sides of the large pile of track scrap, while the No. 2 wrought can be placed by magnet in the classified pile, and all kinds of scrap, as well as wire, wood, trash, etc., can be picked out by hand after the magnet-loaded scrap is removed.

When unloading scrap, many of the larger pieces can be classified by the crane crews while unloading them and the crews should be taught to place such items directly in the classified piles, instead of unloading them on the piles of unsorted scrap where they must be handled again. Scrap which must be torched or sheared, or both, should be unloaded near the shears and close enough to the cutting stations to eliminate the use of portable cutting outfits.

To handle scrap rail economically, two parallel or passing tracks should be provided in the rail yard. Empty light-weighed cars should be set on one track and the scrap rail to be sorted should be set on the other track. The scrap rail can be sorted as unloaded from the inbound cars and loaded directly into cars for market. With the aid of a crane and three or four laborers, the four classes of scrap rail can be picked out with one handling and loaded for market without touching the ground. Also, if any serviceable rail is found on the scrap cars, it can be taken into stock immediately and placed in the rail storage yard adjacent to the rail spurs.

Watch Price Differentials

In preparing and classifying scrap for market, the price differentials are prime factors. Each dock foreman and sub-foremen must have an idea of the prevailing differentials and the actual sorting and preparation should be governed accordingly. Where a permanent force is employed, it is good practice to post a list of the classes of scrap, not indicating prices, according to their respective values. Often, two or three classes will take the same kind of scrap and if there is a differential, and no preparation is necessary, this scrap should be included in the class which brings the highest return.

Knowledge of the average price differentials is particularly useful in dismantling equipment; for example, in dismantling locomotives, water cisterns may be placed in the lowest possible classification or a little higher classification. It may be found, however, that for an additional cost of from $1.00 to $1.50 per ton, including both labor and material, 90 per cent of this scrap can be converted to heavy melting steel and sold for $2.50 to $3.00 per ton more than was being realized under usual classifications for such material.

By such studies railroads can dismantle their equipment and prepare and sell the scrap at a substantial profit over the prices that would be received for the equipment sold on its wheels.

Kansas City Southern Adopts Pre-Employment Training Plan

A PRE-EMPLOYMENT training school was established by the Kansas City Southern on July 13 as a mean of selecting employees and at the same time of making the costly breaking-in process more thorough and comprehensive so as to bring about the avoidance of expensive mistakes, the prevention of misfit assignments and a higher standard of service to the public. Of the seven young men who started with the original class, three have already been placed in regular positions in the office of the auditor of revenues.

The members of this initial class were chosen entirely from Kansas City homes so as to defer beyond the formative period the additional arrangements necessary to take care of students from out of town. It is expected that future classes will be recruited from various points along the line.

Young men accepted for the training must come as high school graduates with an upper 10 per cent scholastic standing. They must first pass a series of tests, stand a physical and mental examination and an investigation of record and background. Personality plays a part. Students who apply for admission and are accepted are informed that a place in actual service is not guaranteed, but that they will be given preference over other applicants when they have satisfactorily completed the course.

The school is under the general direction of J. M. Prickett, superintendent of personnel, and under the direct personal supervision of A. E. Willahan, formerly for several years on the staff of the chief engineer of the Kansas City Southern.

This pre-employment schooling is carried on daily except Saturday and Sunday in the Kansas City Southern Building at Kansas City, Mo., the classroom hours being from 8:30 a.m. to 4:30 p.m., with a lunch period. The school room is fitted up with desks. The teaching method follows more advanced practice, alternating reading and study periods with lectures that are facilitated by chalk-talks and charts. Lectures by the instructor are supplemented by talks delivered by selected representatives of the various departments. Maps, drawings and pictures are used freely and recitations and tests are carried on by methods worked out for this particular purpose. In addition to classroom work students are conducted on tours of observation to yards, shops and freight houses.

The curriculum differs from standard school work since it specializes in rail transportation. Among the subjects emphasized as a basis for general knowledge of the property and the business transacted by the railway are: The location and physical characteristics of the railroad; the railroad's history; the relationship of capital stock, bonded indebtedness, earnings and expenses; the relationship of owners, management, employees and the public; the functions and inter-relationship of the several departments; the organization of the various departments; the official roster; the service performed by the railroad; the fundamental documents involved in railroad operation; the origin and use of the railroad dollar; the railroad's policy toward its employees and the railroad "language".

THE EXECUTIVE COMMITTEE of the National Industrial Traffic League will meet at Chicago on October 20, to consider the course to be followed by the League in regard to the railroads' proposals to make emergency rates permanent.

Truck Acquisition Not Approved

Commission and its examiners find objections to applications by railroad-controlled companies

WASHINGTON, D. C.

PLANS of some of the railroads to extend their truck operations by acquisition of motor carriers through subsidiary companies have encountered obstacles in their efforts to obtain approval of the transactions from the Interstate Commerce Commission. Declaring it was not convinced that the way to maintain for the future healthful competition between rail and truck service "is to give the railroads free opportunity to go into the kind of truck service which is strictly competitive with, rather than auxiliary to, their rail operations," and also objecting to the use of a holding company intermediary in the acquisition of motor carrier stocks, Division 5 of the commission, composed of Commissioners Eastman, Lee and Caskie, in a report made public on October 8, declined to approve or authorize at this time the proposed purchase by the Barker Motor Freight, Inc., of the property and certificates of the Barker Motor Freight Lines, and the acquisition by the Pennsylvania Truck Lines, Inc., of control of the Barker Motor Freight, Inc., by purchase of capital stock pending the acceptance of conditions. The conditions which the division finds to be just and reasonable, to be fulfilled before its approval can be obtained, are:

1. That the Pennsylvania Railroad Company take such steps as are legally possible to acquire, subject to commission approval, from the American Contract & Trust Company all interest which the latter owns in Pennsylvania Truck Lines, Inc.

2. That the service to be rendered by the Barker Motor Freight, Inc., in the event the pertinent applications now pending before the commission for certificates under the "grandfather" clause of the motor carrier act are subsequently approved, be confined to service auxiliary and supplementary to that performed by the Pennsylvania Railroad in its rail operations and in territory parallel and adjacent to its rail lines.

3. That the Barker Motor Freight, Inc., submit, based on its claims made in its pending application under the "grandfather" clause, a statement of the routes and description of the territory over and within which it proposes to establish and operate such auxiliary and supplementary service; and also submit a statement of its arrangements proposed for divestment by it of all alleged operating rights in connection with remaining claims embraced in the "grandfather" application.

No order was entered and the proceeding will be held open for 60 days to permit the filing of amended applications and statements showing compliance with the conditions outlined and for such further procedural steps as may be necessary.

Object to Use of American Contract & Trust Co.

The commissioners especially objected to the use of the American Contract & Trust Company, which is controlled through ownership of 100 per cent of its stock by the railroad, as a "link in the chain of railroad ownership", because this subsidiary company is not subject to the commission's jurisdiction. They also said that "in reality, as we see it, this is not a mere purchase of existing operations, but a purchase of operating rights which would hereafter be used, in all probability, if the transaction is approved, in a very different way from that in which they have been used to date."

On the day before this report was issued the commission had also made public a proposed report by Grover L. Swink, of the section of finance of its Bureau of Motor Carriers, recommending denial of the application of the Pennsylvania Truck Lines for authority to acquire control of the Alko Express Lines, on the ground that the proposed acquisition upon the terms and conditions proposed, would neither promote the public interest nor constitute a provident commitment of applicant's funds.

On October 13 the commission also made public a proposed report by Examiner Robert R. Hendon recommending denial of the application of the Cleveland, Columbus & Cincinnati Highway, Inc., controlled by the Chesapeake & Ohio, the Erie, and the Pere Marquette, for authority for the purchase of property and certificates of the Reo Transportation Company, stating that the evidence submitted was insufficient to justify a finding that the purchase on the terms and conditions proposed would promote the public interest.

Barker Motor Freight Lines, a partnership composed of D. P. Barker and Floyd Barker, the property and certificates of which the new company proposes to purchase, is alleged to have been engaged from 1922 to April 1, 1936, in the transportation of property by motor vehicle in Ohio, Michigan, West Virginia, Kentucky, Indiana, and Pennsylvania. The Barker Motor Freight, Inc., was formed last year to take over the business which had been developed from a one-truck operation to one comprising 34 units of automotive equipment and from 50 to 55 employees. The Pennsylvania Transfer Company of Pittsburgh, subsequently changed to the Pennsylvania Truck Lines, Inc., had arranged to purchase the stock of the Barker company for $25,000. The Truck Lines company is controlled by the American Contract & Trust Company through ownership of 71 per cent of its common stock and 100 per cent of its preferred stock.

The discussion of the issues in the report includes the following:

Issues Involved

The primary purpose of the proposed acquisition of control is to permit vendee to establish a coordinated truck-rail service in Ohio similar to that now furnished by it in the territory east thereof. In line with this program it is vendee's intention to establish zone or concentration stations to which less-than-carload freight will be handled from points contiguous thereto by truck and assembled in full carload lots and thence forwarded by rail to other such stations for distribution by truck to the consignees. In addition, vendee proposes to continue the present over-the-highway operations of the partnership, but with improved service and greater frequency and regularity of schedules.

It is represented that the acquisition and operation of the properties of the partnership by the new company under the control of vendee as proposed will promote the public interest and be to public advantage by permitting the establishment of a coordinated truck-rail service properly synchronized under a single management. This dual form of transportation is expected to furnish a more expeditious and economical service. Witnesses for the vendee claim that, in many instances, such coordinated service has reduced by as much as 24 hours the

time required to deliver less than carload freight entirely by rail.

It is contended that the acquisition will provide a stable and more dependable and responsible transportation service through the larger financial resources of vendee and the change in the responsibility for the operation of the partnership's facilities.

Vendee also represents that economies in operating and other expenses will be effected through the use of: joint stations, and agencies for procuring and handling traffic; the skilled and experienced personnel of the vendee; increased credit and purchasing power of vendee; and by investment savings in equipment and other facilities. Another important anticipated advantage to the public is the availability to the new company of additional and better operating equipment with which traffic requirements may be met.

Vendee further states that the over-the-highway service contemplated will be advantageous to the public because it offers a more flexible means of transportation than that provided by the Railroad. It was pointed out that the Railroad freight stations are closed considerably earlier than the latest hours at which freight can be accepted for shipment by truck. It is further claimed by vendee that the proposed acquisition will not unduly restrain competition. In that connection it was testified that there is no route over which the partnership operates which is not also served by at least three competitors, while some of the routes are served by from 25 to 50. An exhibit was introduced showing the names, addresses, and termini of over 100 competing motor carriers operating in the territory served by the partnership. The vice-president of the vendee stated that it is vendee's policy to operate only in the territory parallel and adjacent to the Railroad's lines and that in those instances, where the partnership's operations extend into territory served by other railroads, vendee would be willing to negotiate with them in respect of the disposition of such operations, and failing in that, would be willing to have the matter settled by the Interstate Commerce Commission or any other qualified body.

Certain questions arise in regard to these proposed transactions. The partnership property is to be acquired by the new company, a corporation. That company in turn is to be controlled by the Pennsylvania Truck Lines, Inc., the vendee, through purchase of its entire capital stock. The vendee is controlled by the Contract Company through direct ownership of 71 percent of its common stock and 100 percent of its preferred stock and indirect ownership through Scott Bros. Inc., of the remaining common stock. The Contract Company is controlled through ownership of 100 percent of its stock by the Railroad, which is also its sole creditor.

The Contract Company is not subject to our jurisdiction and is a corporation of the "holding company" type with the usual broad powers. It should be said to the credit of the Railroad that while this company is not within the jurisdiction of the Commission, the Railroad has in this case, through counsel, furnished such information as we sought in respect to it. Apparently the Contract Company owns no property other than securities and cash, and does not now engage in any business other than such investments. They include truck, bus, steamship, and warehouse stocks, and also warehouse bonds.

We are informed that there has been a legal question as to whether or not the Railroad, under its charter, has the right to own directly the stock of a motor carrier, and that it was for this reason that stock of vendee and other motor carrier companies was acquired through the Contract Company. We are further informed that as quickly as the legal right of the Railroad to hold motor carrier stock directly is definitely determined, or it is felt safe, in the opinion of counsel, to do so, the Contract Company will either be dissolved or will relinquish its ownership of motor carrier securities to the Railroad. It is indicated that counsel now believe that, under the Motor Carrier Act, 1935, direct ownership of the securities of motor carriers can be justified.

Apparently it was the intent of the state, when the Railroad was organized, to confine it to the conduct of a railroad business or activities closely associated therewith. At all events doubts have existed as to its right to enter another field of activity through direct acquisition of the stocks of motor carrier companies. It has apparently been the opinion of counsel, however, that no such doubt existed as to its right to have created and own a subsidiary company and to acquire motor carrier securities through that *alter ego*. To any one concerned with realities rather than legal fictions this is, of course, a distinction without a difference, and illustrates the use so frequently made in this country of dummy corporations to accomplish indirectly what can not be done directly. Such practices bring law into disrepute, and we are unwilling to lend them countenance. Apart from this general objection, there is a specific objection in this case. As already indicated, we have no jurisdiction over the Contract Company and no certain rights to obtain knowledge of its affairs. The introduction of such a link in the chain of ownership whereby a railroad controls a motor carrier is plainly undesirable. We are reluctant to approve any acquisition by the vendee of control of a motor carrier, unless and until this link in the chain of railroad ownership has been eliminated.

It is the obvious intent of the Act that special safeguards shall surround acquisitions of motor carriers by carriers engaged in other forms of transportation, and no doubt railroads were particularly in mind. The proof in such cases must show, not merely that what is proposed is *consistent* with the public interest, but that it will actively *promote* the public interest and in a particular manner, namely, by enabling the acquiring carrier "to use service by motor vehicle to public advantage in its operations." The proof must further show that the acquisition will not "unduly restrain competition."

The application for a certificate covers 27 regular routes and also various routes over which it is said that irregular service was maintained. When shown on a map, it is evident that the regular routes alone gridiron the state of Ohio and extend into all of the surrounding states. It is also evident that while some of these routes roughly parallel lines of the Railroad, many of them do not, but cover territory which the Railroad does not now serve at all. To furnish service on this vast network of routes, the partnership has 13 trucks, averaging in cost less than $1,000 each, 10 tractors, and 11 trailers. Six of these vehicles have been depreciated to a value of $1 each. Obviously this equipment can supply only the most meagre service on the routes over which operating rights are claimed. Nor would it suffice to serve the needs of the Railroad for the contemplated auxiliary truck service in connection with its rail service. It is clear, therefore, that what the Railroad desires chiefly to acquire are operating rights.

In possession of this motor carrier, and assuming that its claims under the "grandfather" clause can be established, the Railroad would have a right to expand operations over this great network of routes indefinitely, for section 208 of the Motor Carrier Act, 1935, provide that no terms, conditions, or limitations attached to the certificate "shall restrict the right of the carrier to add to his or its equipment and facilities over the routes, between the termini, or within the territory specified in the certificate, as the development of the business and the demands of the public shall require." Because there are now many independent truckers in the territory in question who have not found the competition of the partnership unduly formidable does not mean that they will not suffer very serious competition, once these operations have the backing of the Railroad. It must be borne in mind that this backing means, not only great financial strength, but also opportunity to use the soliciting force of the Railroad and its influence with shippers.

The proof is convincing that over some of the routes in question the Railroad can "use service by motor vehicle to public advantage in its operations." The motor vehicle can undoubtedly be used as a very valuable auxiliary or adjunct to railroad service, particularly less-than-carload service, and the many opportunities for such use here have been pointed out of record and are clear. Such co-ordination of rail and motor vehicle operations should be encouraged. The result will be a new form of service which should prove of much public advantage. Nor do we believe that the creation of this new form of service will "unduly restrain competition." On the contrary, it should have the opposite effect.

The Railroad does not, however, so far as the routes in question are concerned, propose to confine itself to motor vehicle service auxiliary to its rail operations. It contemplates, also, the furnishing of motor carrier service which would not be associated in this way with rail operations, pointing out that with its financial and other resources it would be able to expand and improve very materially the service which the partnership has been furnishing.

While we have no doubt that the Railroad could, with the resources at its command, expand and improve the partnership

service and that, so far as numbers are concerned, there is now an ample supply of independent operators in the territory for the furnishing of competitive service, we are not convinced that the way to maintain for the future healthful competition between rail and truck service is to give the railroads free opportunity to go into the kind of truck service which is strictly competitive with, rather than auxiliary to, their rail operations. The language of section 213, above quoted, is evidence that Congress was not convinced that this should be done. Truck service would not, in our judgment, have developed to the extraordinary extent to which it has developed if it had been under railroad control. Improvement in the particular service now furnished by the partnership might flow from control by the Railroad, but the question involved is broader than that and concerns the future of truck service generally. The financial and soliciting resources of the railroads could easily be so used in this field that the development of independent service would be greatly hampered and restricted, and with ultimate disadvantage to the public.

Attention may also be called to the fact that the Railroad itself appreciates the wide scope of the operations which would be permitted under the rights which the partnership claims under the "grandfather" clause. This is indicated by the statement of vendee's Vice President that where the partnership operations extend into territory served by other railroads, vendee would be willing to negotiate with them as to the disposition of such operations or, failing in that, have the matter settled by us or any other qualified body. It will be noted, however, that its apprehensions relate only to complications with other railroads, and its proposal is to leave the operating rights in some form of railroad control.

We are unable to find, therefore, that the employment by the Railroad of the properties and rights of the partnership to provide over-the-highway truck service as proposed herein in competition with rail and motor carriers generally, including the Railroad, will "promote the public interest" by enabling the Railroad to "use service by motor vehicle to public advantage in its operations and will not unduly restrain competition."

We have authority to approve the instant transaction upon such terms and conditions as we may find just and reasonable and with such modifications as we may prescribe. The conditions which we deem just and reasonable involve actions by the Railroad and the Contract Company, neither of which is a direct party to these proceedings. The conditions also involve action on the part of the new company to divest itself of authority to conduct operations not auxiliary and supplementary to those of the Railroad. Under all the circumstances it seems advisable for us to announce the conditions which must be fulfilled before our approval can be obtained. In this way there will be avoided the delay and expense which would attend dismissing the present applications with leave to file new applications thereafter.

Examiner Recommends Denial of Application Of Erie, C. & O., and P. M. Subsidiary

The Cleveland, Columbus & Cincinnati Highway, Inc., which has approximately 500 motor vehicles engaged in operation over regular and irregular routes in Ohio, Michigan, Illinois, Indiana, Pennsylvania, West Virginia, and Kentucky, had applied for authority to purchase certain property and assets of the Reo Transportation Company, which owns 16 motor vehicles, including certificated rights to operate in Ohio, for $33,000. It contended that approval of the transaction by the commission was not required under section 213 of the motor carrier act because less than 20 motor vehicles were involved, and for other reasons, but the examiner says that the word "involved" as used in section 213 should be interpreted to include all motor vehicles operated by, for, or in the interest of the applicant plus the number being acquired. The examiner points out that the purchase price greatly exceeds the value of the tangible assets of the property to be acquired, appraised at $9,860, and also says that approval of the proposed acquisition would eliminate one very effective competitor of the applicant. The report also includes the following:

Present operation of vendor's property by applicant is supervised, in conjunction with later's operations, through its Cleveland office. Vice-president of applicant states vendor's operation will be given latest type of equipment; that there will be available to it the applicant's reserve of equipment in Columbus; and that the service will be otherwise improved by the establishment of through and direct routes, particularly as to intrastate freight. However, applicant already has, or at least can establish such through and direct routes to approximately all points served by vendor without this acquisition, due to the parallel nature of the two operations. It was further represented there will be considerable saving in operating expenses through the use of unified terminal and equipment facilities. The statements made by the witness are only general in character and do not either detail the approximate amounts of such alleged economies or adequately specify the manner in which it is expected they will be accomplished. Applicant has, in fact, been using vendor's equipment since January and has adopted rate schedules previously in effect. There is no showing of increase or modernization of equipment, or that there is any need therefor, or that vendor's service was inadequate.

It is represented that the U. S. Truck Lines, Inc., owns all or a majority of the stock of 16 motor carrier corporations, including all of the stock of applicant, and that 58 percent of the stock of U. S. Truck Lines, Inc., is owned by Standard Carloading Corporation. The applicant and U. S. Truck Lines, Inc., have several officers and directors in common, while the Boards of Directors of U. S. Truck Lines, Inc., and Standard Carloading Corporation have six members in common. The stock of the Standard Carloading Corporation is owned by three holding companies, The Erie Land and Improvement Company, Virginia Transportation Corporation, and Lake Erie Coal Company, Ltd., in equal parts. The stock of last three named companies is owned by Erie Railroad Company, The Cheaspeake and Ohio Railway Company, and Pere Marquete Railway Company, respectively.

Denial of Keeshin Application also Recommended

J. Edward Davey, chief of the section of finance of the commission's Bureau of Motor Carriers, has submitted a proposed report recommending denial of the application of the Keeshin Transcontinental Freight Lines, Inc., for authority to acquire control of the Seaboard Freight Lines, Inc. (three corporations of Connecticut, Massachusetts, and New York), and of the United Motor Lines, of Connecticut, saying: "In view of Seaboard's history as to earnings during the time prior to that operation being under Keeshin influence, and the small value of Seaboard's assets as compared with the proposed purchase price, it does not appear that the price to be paid by the applicant for the Seaboard stock is justified, or that the expenditure of the amount involved would be a provident commitment of applicant's funds, particularly since applicant is seeking authority by separate application to issue securities to obtain funds with which to finance the proposed acquisition."

Investigation of Freight Forwarding

(*Continued from page 562*)

roads, Mr. Walsh offered the testimony of Charles M. Young, rate specialist of the I. C. C. Bureau of Traffic. Mr. Young presented four exhibits—one reproducing certain rules of the consolidated classification, and the other reproducing in turn certain exceptions to official classification rules published by carriers in New England, Trunk Line and Central Freight territories. The purpose of Mr. Young's testimony was evidently to lay the groundwork for testimony of subsequent witnesses as to the practices of railroads with respect to enforcement of these rates and exceptions on shipments by forwarders.

Car Shortages Reported in Mid-West Territory

(*Continued from page 553*)

discussion was the exceptions found in tariffs. Some shippers contended that a few roads make a practice of setting up exceptions to almost all tariffs, with the result that no two interpretations are the same. One shipper contended that if exceptions were removed, a reduction in overcharge claims, to the advantage of the railroads, would immediately follow.

The report of the committee on the prevention of freight loss and damage, in considering the proposal of the Pacific Coast Transportation Advisory Board for a freight claim prevention week, recommended that since one week affords insufficient time to accomplish the desired results, the 13 advisory boards sponsor a freight claim prevention month during March, 1937, such undertaking to be national in scope with the committees of all boards co-operating. Joe Marshall, special representative of the freight claim division of the Association of American Railroads, urged shippers to exchange loading and packing information so that modern and efficient methods of packing, loading and stowing would be employed more generally, with a resulting decrease in damage.

Baltimore Meeting

The discussion of possible car shortages at the Baltimore meeting of the Atlantic States Board was launched by shipper representatives who cited decreases in railroad-owned cars and the increase in carloadings. W. C. Kendall, chairman of the Car Service Division, A. A. R., and G. Metzman, manager of freight transportation, New York Central, and chairman of the district railroad contact committee, were prompt with assurances that there would be no shortage in the East. When representatives of coal shippers indicated that they were facing a "tight situation" they were informed that railroads were keeping currently advised as to car requirements of the various types of commodities. Further discussion developed the prediction that weekly loadings in the immediate future would not reach 900,000 cars; and railroad representatives thought that such a volume could be handled with the present car supply.

Committee reports estimated that in Atlantic States territory there would be a 12 per cent increase in loadings for this year's fourth quarter as compared with the fourth quarter of 1935. Other proceedings of the meeting included addresses by Fitzgerald Hall, president of the Nashville, Chattanooga & St. Louis, and C. E. R. Sherrington, secretary, Railway Research Service, Great Britain; also preliminary special committee meetings on co-operative plans for reduction in freight loss and damage, and discussions of legislative affairs of mutual interest to shippers and railroads.

FORMATION OF A "COMMITTEE OF RAILROAD SUPPORT," to offer voluntary assistance to railroads which are criticized for various alleged acts of commission, or omission, or those which are involved in public hearings on matters of service, elimination of grade-crossings, etc., was voted by the New York Division of the Railroad Enthusiasts, Inc., at their first fall meeting in Grand Central Terminal on September 25. The committee will include one member for each New York railroad, each member to be a commuter on that railroad, but not a railroad employee. The Railroad Enthusiasts believe that in this manner they can be of assistance to the railroads in endeavoring to bring out the truth of matters involving criticism of railroads.

Odds and Ends . . .

Signs of Recovery

Illegal train riders and trespassers removed from trains, but not arrested, in June, this year, numbered 440,490, a decrease of 194,817, or 30 per cent, compared with the corresponding month last year when there were 635,307, the Association of American Railroads reports.

Railroad Friend

A. S. Bussey, president and publisher of "The Tropical Sun" of West Palm Beach, Fla., has no financial interest in the railways, but he has had a number of those near and dear to him killed on the highways in private automobiles. Inspired by this, Mr. Bussey has been running a series of ads in his newspaper headed: "Get Off the Deadly Highways, Go and Come Safely by Rail and Train."

Three Generations

There has been a Charles Smurr in the traffic department of the Southern Pacific for 64 years now. The first one entered service as receiving clerk in 1872, and, at the time of his death in 1897, was freight traffic manager. Charles Smurr, II, entered S. P. service as receiving clerk immediately after his father's death, and, when he resigned as industrial agent after 30 years' service, his son, Charles Smurr, III, entered S. P. service as city freight agent. He's traveling freight agent now, with headquarters at El Centro, Cal., and there's a Charles Smurr, IV, growing up, who will, in time, his father hopes, carry on the tradition of the S. P. always having a Charles Smurr on its payrolls.

Model Engine Exhibit Marks Inventor's Anniversary

Marking the 181st anniversary of the inventor's birth on September 13, the New York Museum of Science and Industry has placed on exhibition in its headquarters in the RCA Building, Rockefeller Center, a working model of one of Oliver Evans's early high-pressure steam engines. The model, which has been reconstructed by Greville Bathe and Richard Williams from data left by Mr. Evans, is complete, with his patented internally-fired boiler, pre-heater and automatic feed pump. Built in one-quarter inch scale, the model represents a small engine of six horse power, of a type known as the "grasshopper," in popular use many years during the early part of the 18th century for steamboats and locomotives. It was also used in factories and flour mills and was built in several sizes from 5 to 20 horsepower. The model at the museum operates by a push button to show the engine in action.

Smallest Railroad

SALEM, ORE.

TO THE EDITOR:

The Pioneer & Lafayette, mentioned on page 324 of your August 29 issue, is not the smallest railroad in the nation. The Union Railroad of Oregon operates from a junction with O. W. R. & N. Co. at Union Junction, a distance of 2.3 miles to Union, Ore., over a single track of standard gage. It has, besides, a total of 0.58 miles of yards and sidings, making a grand total of 2.88 miles of track. In 1935, it carried 7,907 tons of revenue freight and no passengers, and derived therefrom a net income of $92 after paying all operating expenses and taxes. It has no bonded indebtedness or loans outstanding against it. It is a bona fide common carrier by rail, having on file in this office its tariff P.S.C. Or. No. 7, and its tariff I.C.C. No. 6 with the Interstate Commerce Commission. It was evaluated by the I.C.C. and on January 22, 1926, it set a value of $106,882 as shown in Valuation Docket No. 105, Vol. 106, p. 511. We are not claiming this is the smallest railroad in the nation, but if they come any smaller they will have to be very small.

JOHN H. BAGLEY, JR.,
Engineer, Transportation Division, Public Utilities Commission.

NEWS

Railroads Serve 25,000,000 Meals Annually in Dining Cars

Approximately 25,000,000 meals a year are prepared and served on trains to appease the appetites of the traveling public, according to a statement issued by the Association of American Railroads.

This is a sizeable job particularly in view of the fact these meals must be served from dining car kitchens approximately 6⅔ feet wide and 16 feet long, while speeding over the rails, in many cases, at better than a mile a minute.

Before a dining car leaves a terminal, the steward must stock his car to meet the demands of the epicure as well as the passenger of simple tastes. Once the run begins, there is not always an opportunity for him to replenish his stock of supplies.

From experience, according to the statement, the steward knows that of every hundred patrons about 85 will want coffee and 15 tea. About 35 will ask for roast beef while the remainder will order chicken, fish, chops and steaks in about the order named. There is one thing upon which the steward can gamble with assurance, and that is the fact that apple pie is still the greatest American dessert, exceeding all others in demand.

The average equipment of each dining car consists of 800 pieces of china, 980 table cloths and napkins, about 240 pieces of glassware, 550 pieces of silver, and 200 pantry and kitchenware items. Approximately 1,000 dishes of all kinds must be washed during a meal period by one man at a sink less than two feet square.

Some idea as to the immensity of this job of furnishing food to the hungry travelers can be gained from the fact that the dining rooms of the hotel reputed to be the largest in the world average approximately one and a half million meals a year. One large eastern railroad alone serves nearly two and one-half million meals a year on its diners.

Installation of air-conditioned dining cars and train equipment, according to officers in charge of the dining car service, has resulted in an increase in the number of orders for heavier meals.

More than 15,000,000 pounds of meat, costing approximately $3,500,000, are consumed annually in railway dining cars, contrasted with approximately $155,000 for meats in the largest hotel in the world. Mr. and Mrs. Traveler also enjoy their coffee and tea, using annually approximately 1,000,000 pounds of coffee and about 250,000 pounds of tea.

Keeping the dining car service supplied with milk is an enormous job not only because of the quantity used but also because it must always be fresh. Dining cars attached to transcontinental trains must be supplied with fresh milk at various points en route. This means that milk must be waiting at the station when the train arrives, for a train cannot be delayed because the milk man has overslept or is otherwise late in arriving. Approximately 3,500,000 quarts of milk and cream are used annually in dining cars.

Eggs also play an important part in the diet of the traveling public. An average of 2,000,000 dozen eggs is used annually. The bread bill of the railroads also is a sizeable amount; an average of 1,125,000 loaves of bread and 30,000,000 rolls being served each year, upon which 2,000,000 pounds of butter are spread.

More than three thousand acres of farm land are required to grow the 9,000,000 pounds of potatoes which the dining car service of the railroads require each year. Fifteen thousand barrels of apples, 1,625,000 oranges, and a half million grapefruit go to make up the larger part of the railroads' $750,000 annual fruit bill.

Ice cream ranks high in the public's choice of desserts, with the result that approximately 450,000 quarts are used on an average in each year, enough to provide a cone for every child in the United States between the ages of five and seven.

Efficient movement of the 1,500 dining cars now in service is an intricate task. On some long runs a diner will continue through from one terminal to another with the crew sleeping on the train. In other cases, dining cars are cut off from trains at certain points at night and restored to other trains in the early hours of the following morning so that breakfast will be ready to serve to the early risers. However, through years of experience, an efficient and dependable system of handling dining cars has been developed. There can be no slip-up in the arrangements by the commissary departments of the railroads. They know, and the passenger knows, that even though the dining car has been detached in the night, another one will be available the next morning and breakfast will be served as usual.

In addition to the regular dining car service, a number of railroads have installed lunch counter cars. Some railroads extend their dining car service direct to the passenger in his coach seat.

Before being employed in the dining car service, stewards, chefs and waiters are required to undergo a course of instruction at schools maintained for this purpose by the railroads. One large eastern railroad, for instance, has three such schools where there are reproductions, both in space and equipment, of the latest dining cars. These schools are conducted under the observation of skilled instruction forces, thus enabling "on the spot" correction of deficiencies.

Preliminary Report Shows September Revenues 16.4 Per Cent Over 1935

Preliminary reports from 89 Class I railroads, representing 77.2 per cent of total operating revenues, just received by the Association of American Railroads, show that those railroads, in September, had estimated operating revenues amounting to $276,012,576, compared with $237,116,976 in the same month of 1935 and $357,628,167 in the same month in 1930. Operating revenues in September were 16.4 per cent above those for September, last year, but 22.8 per cent below September, 1930.

Freight revenues of the 89 Class I railroads amounted to $226,114,336 in September, compared with $193,192,920 in September, 1935, and $280,683,048 in September, 1930. Freight revenues in September, this year, were 17 per cent above the same month last year, but 19.4 per cent below the same month in 1930.

Passenger revenues, according to these preliminary reports from 89 Class I railroads, totaled $28,184,768 in September, this year, compared with $24,088,392 in September, 1935, and $46,487,454 in September, 1930. This was 17 per cent above the same month last year, but 39.4 per cent below the same month in 1930.

Operating revenues of 36 Class I railroads in the eastern district in September, this year, were 18.2 per cent above the same month last year, but 20.7 per cent below September, 1930.

Freight revenues were 19.2 per cent above the same month in 1935, but 16.3 per cent below the same month in 1930. Passenger revenues showed an increase of 16.4 per cent compared with September one year ago, but a decrease of 39.1 per cent compared with September, 1930.

Operating revenues of 21 Class I railroads in the southern district in September were 14.5 per cent above the same month last year, but 16.4 per cent below September, 1930. Freight revenues were 15.2 per cent above the same month in 1935, but 13.9 per cent below the same month in 1930. Passenger revenues were 15.2 per cent above September one year ago, but 32.7 per cent below September, 1930.

Operating revenues of 32 Class I railroads in the western district in September were an increase of 13.7 per cent compared with the same month last year, but a reduction of 28.3 per cent compared with September, 1930. Freight revenues were 13.8 per cent above the same month in 1935, but 26.1 per cent below the same month in 1930. Passenger revenues in September, this year, were 19.3 per cent above those for September one year ago, but a decrease of 42.2 per cent below September, 1930.

Increased Farm Income Paralleled by Increased Freight Shipments

An increase in farm income during the period 1932-1935 was closely paralleled by an increase in carload shipments of manufactured commodities from areas dominantly industrial to areas where agriculture contributes an important part of the total income, according to a report by the Agricultural Adjustment Administration making an analysis of railroad shipments for that period from 16 northern and northeastern states to the 32 other states. How close the parallel was apparently depends on who does the figuring, because the press release issued on the report said that the freight shipments analyzed increased 60.1 per cent while the farm income increased 64 per cent, but the report itself refers to the farm cash income in 1935 as 58 per cent larger than that of 1932. The study was a continuation of one initiated by the A. A. A. in 1934, preliminary results of which were announced last year.

"Farm cash income in 1935 was 58 per cent larger than that of 1932. Manufactured commodity shipments by carlots to agricultural areas, in a corresponding period, showed an increase of 60.1 per cent," the report says. "The accompanying study was undertaken to determine the extent to which this increase was coupled with an increase in shipments of manufactured commodities into the states where agriculture plays an important role in maintaining purchasing power. This study provides a clue to the part larger farm purchasing power has played in maintaining operations of mills and factories in the industrial regions.

"The information presented was developed through a study of more than a half million freight waybills and waybill abstracts in the freight auditors' offices of 16 railroads which handle approximately 75 per cent of the traffic in manufactured commodities delivered to the agricultural regions. The study includes only carlot shipments, but these account for more than 95 per cent of the total weight of all shipments between the regions studied.

"Commodities studied were divided into four main groups according to their type and nature of their use:

"1. Agricultural — commodities used principally in farm production.

"2. Domestic and personal—commodities used principally in the home, whether urban or rural.

"3. Industrial and commercial—commodities used principally in industrial and commercial activities.

"4. General—commodities used generally on farms, in homes and in industry.

"For purposes of the study the territory east of the Mississippi river and north of the Ohio and Potomac rivers, comprising 16 states, was taken as the area of origin of the industrial shipments. About 75 per cent of the manufacturing of the country is carried on in this area.

"The territory west of the Mississippi river and south of the Ohio and Potomac rivers comprising 32 states, was taken as the area of destination of the industrial shipments. About 70 per cent of the agricultural cash income of the country is received in this area.

"The railroads delivering shipments studied in the survey are: The Illinois Central; Central of Georgia; Southern; Louisville & Nashville; St. Louis-San Francisco; Missouri Pacific; Atchison, Topeka & Santa Fe; Texas & Pacific; Southern Pacific; Great Northern; Northern Pacific; Union Pacific; Chicago, Milwaukee, St. Paul & Pacific; Chicago, Rock Island & Pacific; Chicago, Burlington & Quincy; and Chicago & North Western.

"The shipments originated on more than 125 railroads operating in the North and East.

"Manufactured commodities shipped from the 16 industrial states increased 60.1 per cent in the 12 months ending June 30, 1935, as compared with the 12 months ending June 30, 1933. For the 12 months ending June 30, 1934, the increase over the previous year was 38.7 per cent. During the 12-month period preceding June 30, 1933, before the inauguration of agricultural and other recovery measures, the total weight of carlot shipments of manufactured goods originating in the 16 industrial states and delivered by the same 16 railroads was 8,333,958,000 pounds; for the first 12 months following the inauguration of these measures the tonnage amounted to 11,557,269,000 pounds, a gain of 3,233,311,000 pounds. For the next year the total was 13,342,383,000 pounds, representing a gain of 5,008,425,000 pounds over the year ending June 30, 1933."

TABLE 1—Total Shipments, All Groups

Group	Year 1 (July 1, 1932, to June 30, 1933) Thous. lbs.	Year 2 (July 1, 1933, to June 30, 1934) Thous. lbs.	Percentage of increase, year 2 over year 1	Year 3 (July 1, 1934, to June 30, 1935) Thous. lbs.	Percentage of increase, year 3 over year 2	Percentage of increase, year 3 over year 1
Agricultural	247,261	515,628	108.5	655,806	27.2	165.2
Domestic and personal	636,211	1,004,329	57.9	1,264,409	25.9	98.7
Industrial and commercial	2,772,821	3,896,392	40.5	4,359,296	11.9	57.2
General	4,677,665	6,140,920	31.3	7,062,872	15.0	51.0
Total	8,333,958	11,557,269	38.7	13,342,383	15.4	60.1

Eastern Car Foreman's Association

The Eastern Car Foreman's Association will hold its first meeting of the fall season in room 502 of the Engineering Societies building, 29 West 39th street, New York City, at 8 P. M. Friday, October 23. The subject at this meeting will be "Noise". C. E. Bryant, Jr., mechanical assistant to vice-president, Johns-Manville Sales Corporation, New York, will discuss some of the scientific aspects and background of this subject, illustrating his talk with a sound motion picture, and will tell of the research work which is being done on equipment.

Bright Future for Railroads Seen by J. J. Pelley

The future of the American railroads is brighter today than it has been in many years, J. J. Pelley, president of the Association of American Railroads, said in an address before the American Life Convention at Dallas, Tex., on October 14.

"With the inherent efficiency of the rail method of moving business," Mr. Pelley said, "and with equality of treatment and opportunity for which we hope, the railroads will continue to develop. As the commerce of this continent develops they will continue to be the essential backbone of that commerce and, in the language of the railroads, they will 'make the grade.'

"The railroads are and will continue to be the essential agency of transportation. They are alert in bettering service and cutting unit costs. They have such efficiency as, with normal volume, makes possible their continued operation on a self-supporting profit-making basis. There is good reason for belief that those inequities in public policy, which have had the effect of reducing railroad volume and raising railroad costs, are on the way toward correction.

"There is a growing recognition on the part of the public that government subsidy to competing forms of transportation adds to the burden of the taxpayer and that by diverting tonnage and reducing volume, increases the necessary cost of essential railroad service. Public recognition of a situation is the first step toward its correction.

"Railroad service," Mr. Pelley said, "has been essential in the upbuilding of America and is just as essential today. I say this with full recognition of the value and usefulness of other forms of transportation but with the assured conviction that no one of them, nor all of them together, could physically meet the demands of the commerce of this continent."

Heavy Train Demonstration on Union Railroad

President R. T. Rossell of the Union Railroad Company, together with President George H. Houston and Vice-President Robert S. Binkerd of the Baldwin Locomotive Works, were hosts to a large party of railroad executives assembled in Pittsburgh, Friday, October 9, to witness a demonstration of the powerful switching and transfer locomotives which were built by the Baldwin Locomotive Works for the Union Railroad and which have been in service since last spring. It was an impressive sight to see three of these 0-10-2 locomotives take an 8,000-ton train up a ruling grade of 1.39, which is more than two and a half miles long. These locomotives were described in the *Railway Age* of July 18, 1936, page 105. They have 61-in. driving wheels, 28-in. by 32-in. cylinders, and a total weight for the engine of 404,360 lb., with 343,930 lb. on the driving wheels. They exert a tractive force of 90,900 lb. and are equipped with reversible boosters, driving on the front tender truck, which develop a tractive force of about 17,000 lb. at starting.

After this demonstration the party inspected a mile of Thermit pressure welded track, just north of River Valley on

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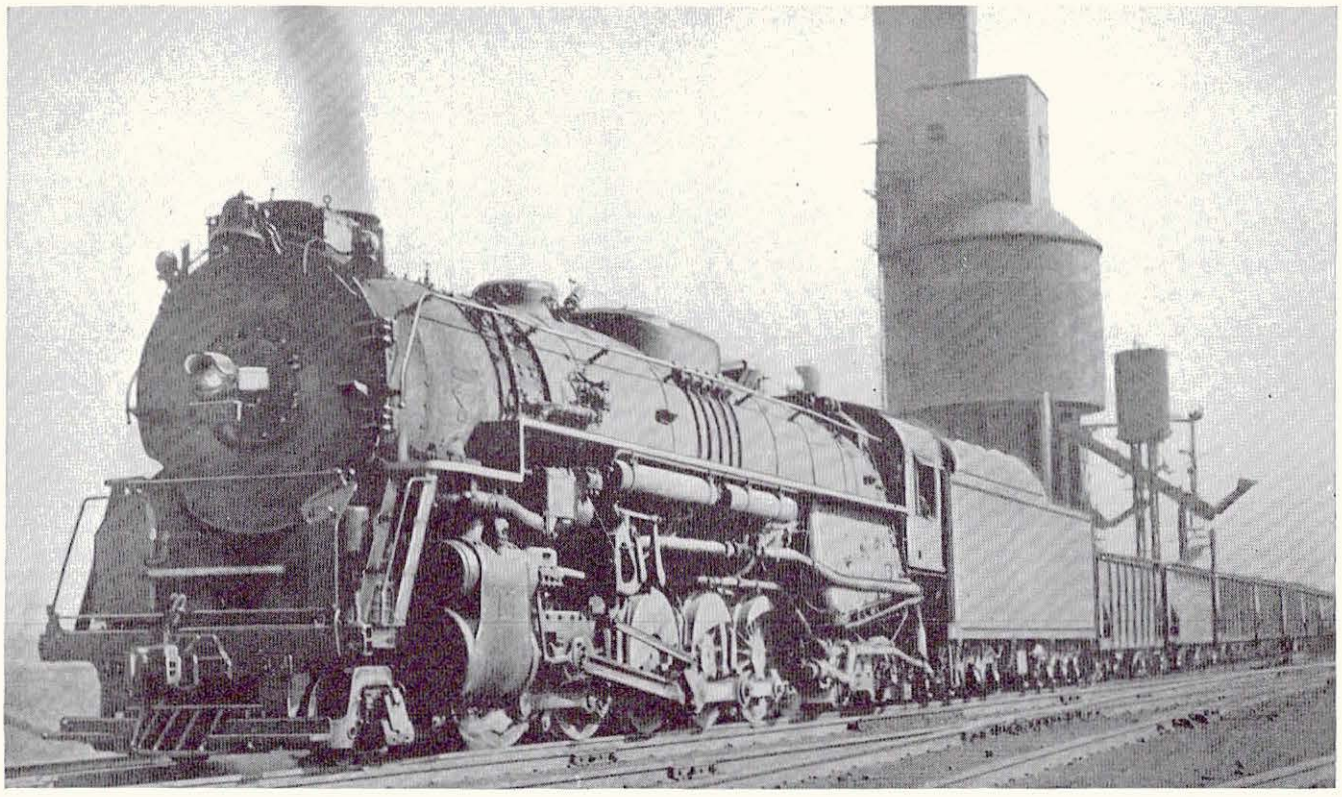
PREPARE WITH POWER



FOR THE NEEDS OF TOMORROW!

Increased car loadings forecast the need for new steam motive power units.

Now is the time to make a study of your operating conditions and decide which steam locomotive designs will best meet your requirements.

Lima is prepared to submit designs which provide maximum power at high speeds, with minimum fuel consumption and low maintenance—designs embodying all of the advances made in the steam locomotive art in the last ten years.

LIMA LOCOMOTIVE WORKS INCORPORATED

LIMA LOCOMOTIVE WORKS, INC., LIMA, OHIO

the Bessemer & Lake Erie. A visit was also made to the new Homestead 96-in. continuous plate mill, which is well on its way to completion and will shortly be placed in service. The party was entertained at dinner at the Duquesne Club in Pittsburgh during the evening, after which moving pictures were shown of the operation of heavy trains on the Union Railroad and also of the details of building the welded track on the Bessemer & Lake Erie.

Clinchfield Rail Lubricator—A Correction

On page 420 of the September 19 issue of the *Railway Age* the oil-consumption cost per mile of curves per month is given as $.094. This should be $.94.

Hearings to Be Held in New Haven Investigation

The Interstate Commerce Commission has assigned its investigation of the affairs of the New York, New Haven & Hartford for hearing at the Hotel Pennsylvania, New York, on October 28, before Chairman Mahaffie and Examiner Mohundro.

Green Diamond Depreciation

Under a plan submitted by the Illinois Central, and approved by the Interstate Commerce Commission, the depreciation rate for the cars of the Green Diamond streamlined train will be 8.14 per cent annually, which allows for a life of approximately 12 years. The depreciation of the Union Pacific streamliners will be calculated at rates ranging from 6.4 to 8.73 per cent.

Keeshin in Hook-Up with North Shore Line

The Keeshin Motor Express Company has completed arrangements with the Chicago, North Shore & Milwaukee for coordinated rail-truck service between Chicago and Milwaukee, Wis. Trucks of the Keeshin company will be loaded on North Shore flat cars at the North Shore's Montrose Avenue station and at the Harrison Street station in Milwaukee.

Reduced Rating on Fish Suspended

The Interstate Commerce Commission has suspended from October 15, until May 15, 1937, the operation of tariff schedules which propose to reduce the carload rating and minimum weight on shipments of fresh or frozen fish from 70 per cent of first-class, minimum 24,000 pounds, to 55 per cent of first-class, minimum 20,000 pounds, between points in Official Classification territory.

A Second "Off the Beaten Track" Excursion from Chicago

So successful was its first "off the beaten track" excursion that the Pennsylvania will operate a second one on Sunday, October 25. The train will leave Chicago at 7:30 a.m. and, after reaching Colehour, will head southeastward through Indiana to Van, where there will be a display of locomotives. From Van the special will travel westward over the Effner branch, where passenger train service was discontinued years ago. After crossing the high bridge over the Tippecanoe river, the train will proceed to Monticello, Ind., and thence over the South Bend branch of the Logansport division to Culver, where there will be a dress parade by Culver Military Academy cadets. After three hours at Culver, the tour will continue to Plymouth, thence over the main line to Chicago, where it will arrive at 5:10 p.m.

F. E. C. Asks Public to Select Its Whistle Tone

The Florida East Coast has been conducting a referendum among the citizens of the various communities it serves to determine their preference in tone for its locomotive whistles. For this purpose a locomotive has been fitted with six whistles offering a considerable variety of tones, and auditions have been provided at various places on the line, following which the citizens' committees have stated their preference.

The whistle contest has attracted a great deal of favorable attention in the Florida press—testing the verbal ingenuity of the reporters in conveying some idea of the sounds to their readers. The selection of the majority appears to be "No. 3," which is described as a steam whistle with a sound like a ship's fog horn. But other descriptive terms also were applied to it. Some report its sound as "Puhlease"; others as "Moo," "Pooh," and "Who."

Few of those voting expressed a preference for the present standard F. E. C. whistle (described as "Shraah"), nor did they care for locomotive whistles which sound like bus horns (called "Hoo"). Other unpopular notes were "Pfoo," "Hah" and "Pee."

P. W. A. Grant Provides for Removal of Railroad Trestle

Removal of the wooden railroad trestle over Forty-seventh street extended, along the south shore of Lake Michigan, in Chicago, and construction of a modern pedestrian and vehicular tunnel beneath the railroad tracks, at a cost of $1,098,182 is made possible by a grant of $494,182 announced by Public Works Administrator Harold L. Ickes. The grant was made to the Chicago Park District, Cook County.

Railway Development Association Meeting

More than 100 representatives of the agricultural and industrial development departments of the railroads attended the twenty-eighth annual meeting of the American Railway Development Association at Detroit, Mich., on October 8 and 9. Officers elected are: President, J. A. Senter, industrial agent of the Nashville, Chattanooga & St. Louis; first vice-president, E. H. Gurton, manager, land settlement and development of the Canadian National; second vice-president, R. G. Buford, assistant manager, industrial development of the Missouri-Kansas-Texas; and secretary-treasurer, E. J. Hoddy, general development agent of the Louisville & Nashville.

Salesmanship to be Discussed at Western Railway Club

Salesmanship and Its Bearing on Railroad Transportation will be the subject of an address to be given by T. W. Evans, vice-president of the New York Central, at the first fall meeting of the Western Railway Club at the Hotel Sherman, Chicago, on October 19. A reception and hors d'oeuvres bar at 5:30 p. m. will precede the dinner and entertainment at 6:30 p.m., and Mr. Evans will speak at 8 p.m.

Railway Express Agency Asks Motor Certificates

A four-day hearing was held last week before Examiner Kephart of the Interstate Commerce Commission on applications filed by the Railway Express Agency under which it seeks a determination by the commission of the extent to which it may be subject to provisions of the motor carrier act. The company had filed 35 separate applications for certificates as a common carrier and permits as a contract carrier and a general application in which it set forth its view that all of its operations were subject to Part I of the interstate commerce act. Representatives of trucking interests asked that the general application be dismissed without prejudice to the filing of applications under the motor carrier act.

Denver Zephyr to Try for New Record

An attempt to better the record of 13 hr. 4 min. 58 sec. established by the Chicago, Burlington & Quincy's Zephyr on May 26, 1934, for the 1,015.4 mi. from Denver to Halsted street, Chicago, will be made by the Denver Zephyr on October 23. For this pre-run of the new trains which go into service between Chicago and Denver on November 8, the train has been chartered by the Chicago Association of Commerce, which has organized a group called the "Gentlemen Adventurers," composed of 100 representatives of industries in and near Chicago. The train will leave Chicago at 7 a.m., central time, with a tentative arrival time in Denver, 1,034 mi., at 7 p.m., mountain time. The schedule is so arranged that the passengers may have breakfast in Chicago and attend a special dinner that night in Denver, as guests of that city's Chamber of Commerce. On the return trip on October 24 the train will leave Denver at 7:30 p.m. and will travel east at its regular speed which brings it into Chicago in 15 hr. 50 min.

I. C. C. Continues Study of Free Transportation

By way of continuing its investigation of the issuance of free transportation instituted last year, the Interstate Commerce Commission has issued an order directing Class I railroads, (except switching and terminal companies) to report for each quarter of the calendar year 1937, but not thereafter until further order, the free

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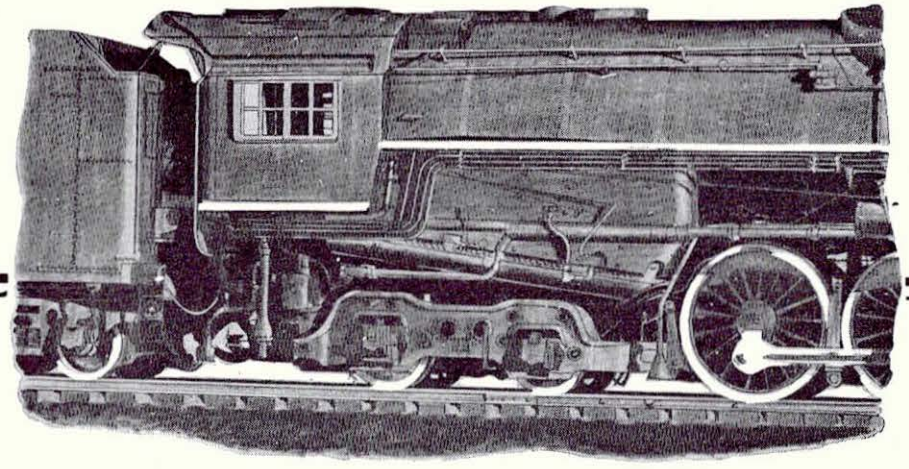
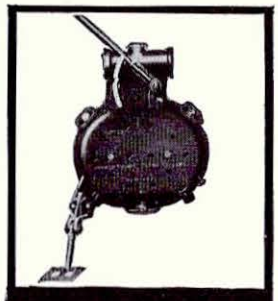
USE BOOSTER LOCOMOTIVES FOR IMPROVED FUEL EFFICIENCY . . .



In a properly co-ordinated locomotive design the boiler and main cylinders are proportioned to produce, at economical coal rates, the maximum horsepower which the operating conditions demand.

To meet the tractive power requirements below the maximum horsepower range and to utilize as much of the potential boiler horsepower as possible, the Locomotive Booster is incorporated as a component part of the locomotive; providing maximum starting effort and rapid acceleration, as well as that reserve power so essential in meeting the close schedules imposed by modern railroad operation.

This balanced design insures main cylinder dimensions no larger than required to utilize the maximum boiler output at most efficient steam rates. Thus economy of cylinder performance and maintenance cost is not sacrificed, as is the case where cylinders are designed for maximum starting power only.



The Franklin #8 Butterfly Type Firedoor increases the efficiency of locomotive firing.

The close tolerances essential to efficient Booster operation call for genuine repair parts made by Franklin.

FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK CHICAGO MONTREAL

transportation furnished to persons other than employees of the reporting carrier and their families, showing the number of free passes and free tickets issued, the number of persons carried free, the number of non-revenue passenger miles traveled by those persons, and the value of such free transportation. The commission recently issued a report on the study of the reports of last year which showed that most of the free transportation was issued to employees and members of their families.

The Denver Zephyrs Start for Home

One of the two Denver Zephyrs built by the Edward G. Budd Manufacturing Company for the Chicago, Burlington & Quincy left the plant at Philadelphia and proceeded to New York over the Pennsylvania on the first lap of its route to Chicago for delivery to the Burlington, on Thursday of this week, with a party of more than 200 professional and business men from Philadelphia as passengers. On arrival at New York the train was placed on exhibition during the afternoon and evening at the Pennsylvania station.

The train, consisting of ten partially articulated body units, moved to New York behind a Pennsylvania electric locomotive. The 3,000-hp., two-unit Diesel-electric locomotive by which the train will be hauled on its regular fast schedule between Chicago and Denver is now nearing completion in the plant of the Electro Motive Corporation, Chicago.

450 on Reading "Rail Ramble"

More than 450 railroad enthusiasts went on the "Rail Ramble" operated by Reading from Philadelphia, Pa., on October 4. The special train, which was run through historic and picturesque places along the railroad in Pennsylvania, provided a full-day of travel. Sponsored by the National Railway Historical Society, the train passed through the Schuylkill Valley, the Conestoga Region and a section of the Blue Ridge Mountains. Returning, the train operated through a portion of the anthracite fields.

A feature of the trip was the escorted inspection trip made through the Reading locomotive and car shops, the passengers being shown the various details in the construction and repairing of locomotives and railroad cars. The famous Cornwall Mine and the old charcoal furnaces, located at Cornwall, also were visited. Guides were on hand to show the passengers the historical connection and to point out the mine, which since Revolutionary days has been producing great quantities of copper-bearing iron ore. The train continued through coal-mining sections and returned to Philadelphia in the early evening.

Illinois Central Courtesy Film

As a part of the campaign for courteous and efficient service that is being conducted by the Illinois Central among its employees, an interesting set of still pictures, synchronized with phonograph records, has been prepared by that railroad. Interspersed with pertinent messages from President L. A. Downs, the pictures illustrate a wide variety of instances calling for courteous service, and point out the benefits to be derived from courtesy. Particular stress is put upon the proper methods of conducting telephone conversations with the public. The pictures also show to the large number of railway employees who do not come in actual contact with the traveling or shipping public the importance of doing their jobs well. The exhibition, giving as it does a remarkably complete picture of the operations of the railway in condensed form, is educational and instructive, and is expected to give the employees a clearer idea of the importance of efficiency and courtesy in their individual jobs as related to the railway as a whole. The pictures will be shown to employees at all important points on the system.

Report on Transportation Lines on the Mississippi

The board of Engineers for Rivers and Harbors announces the publication of a report on Transportation Lines on the Mississippi River System, which is issued as No. 4 of the Transportation Series. The reports in this series are compiled and published under authority of section 500 of the Transportation Act of February 28, 1920, and contain information covering shipping conditions and transportation, as affecting the use of our water routes and ports.

The report gives information concerning the transportation lines and cargo-carrying vessels operating on the Mississippi River system. Table No. 1 in the report is a complete alphabetical list of all lines, companies, or individuals operating vessels on the system. Table No. 2 gives a complete description of the vessels operated by each line, company or individual, including the drafts of vessels when loaded, heights of superstructures above the water line when light, and the cargo handling equipment available. Table No. 3 gives a description of the operations by lines. Distance tables are also included in the report covering the important rivers comprising the system, as well as maps showing the system and its connecting waterways and the project depths thereon.

Club Meetings

The New England Railroad Club will hold its next meeting at Hotel Touraine, Boston, on Tuesday evening, November 10. A. L. Sorenson, manager of stores of the Erie, will present a paper on service of supply. The meeting will begin as usual with a dinner at 6:30 p.m.

The Railway Club of Pittsburgh (Pa.) will hold its next meeting at the Fort Pitt Hotel, Pittsburgh, on Thursday evening, October 22. This will be the annual election of officers. The meeting will be preceded by a dinner at 6 o'clock.

The Southern and Southwestern Railway Club will hold its next meeting at the Ansley Hotel, Atlanta, Ga., on Thursday, November 19, at 10 a.m. The speaker will be A. M. Candy, consulting engineer of the Hollup Corporation; and his subject, electric welding.

Approximately 400 surgeons and physicians and members of their families from six states served by the Norfolk & Western attended the annual convention of the Norfolk & Western Surgeons' Association, which was held at the Pennsylvania Hotel in New York, on October 7 and 8. The program included addresses by Dr. W. H. Teachnor, of Columbus, Ohio, president of the association, and Dr. John J. Moorhead, of New York; also visits to the New York post graduate medical school and hospital, a special industrial and operative clinic, and the association's annual luncheon.

Bus Line Certificates Recommended by I. C. C. Examiner

B. E. Stillwell, examiner for the Interstate Commerce Commission's Bureau of Motor Carriers, has recommended in a proposed report that the commission issue certificates of public convenience and necessity to the Dixie Greyhound Lines, Inc., and the Tri-State Transit Company of Louisiana, Inc., to operate as common carriers for the transportation in interstate or foreign commerce of passengers and baggage, light express, mail, and newspapers, between Memphis, Tenn., and Jackson, Miss., over U. S. Highway No. 51, the certificates of the Dixie company to be subject to the condition that it shall not pick up or deliver at intermediate points, except as otherwise authorized. Each company's application was opposed by the other and Illinois Central and the Railway Express Agency intervened in opposition to both.

The Dixie line now operates between Memphis and Jackson by another route but proposes to engage in a new through service between Chicago and New Orleans. The Tri-State company also engages in local service. Regarding the opposition of the rail carriers the examiner says that "to hold that the passenger and other service rendered by them is adequate would be to disregard in a large measure the expressed preference of the public for bus service, with its commonly acknowledged advantages of cheaper rates, greater flexibility of routings and schedules, and scenic highways. Moreover, while the granting of the above-described authority to both applicants may affect the revenues of the rail carriers, the precise nature and extent thereof cannot be determined on this record."

National Park Travel Increases

Traveling America set an all-time record for visiting its national parks and monuments during the travel year ending September, 1936, with a 70 per cent increase over 1935, according to a statement issued by the Department of the Interior.

One-fourteenth of the total population of the United States, or 9,929,432 persons, visited the 134 national parks and monuments, a gain of more than 4 million over 1935, and a gain of more than 6 million over the depression year 1931 when only 3,619,900 persons visited the areas. New highs were set also for the number of persons visiting the parks in private cars. Registrations show a total for 1936 of 1,772,338, as against last year's total of 1,217,054.

Of special interest to the section of the United States east of the Mississippi is the fact that the parks of this region were highest on the travel list. The highest

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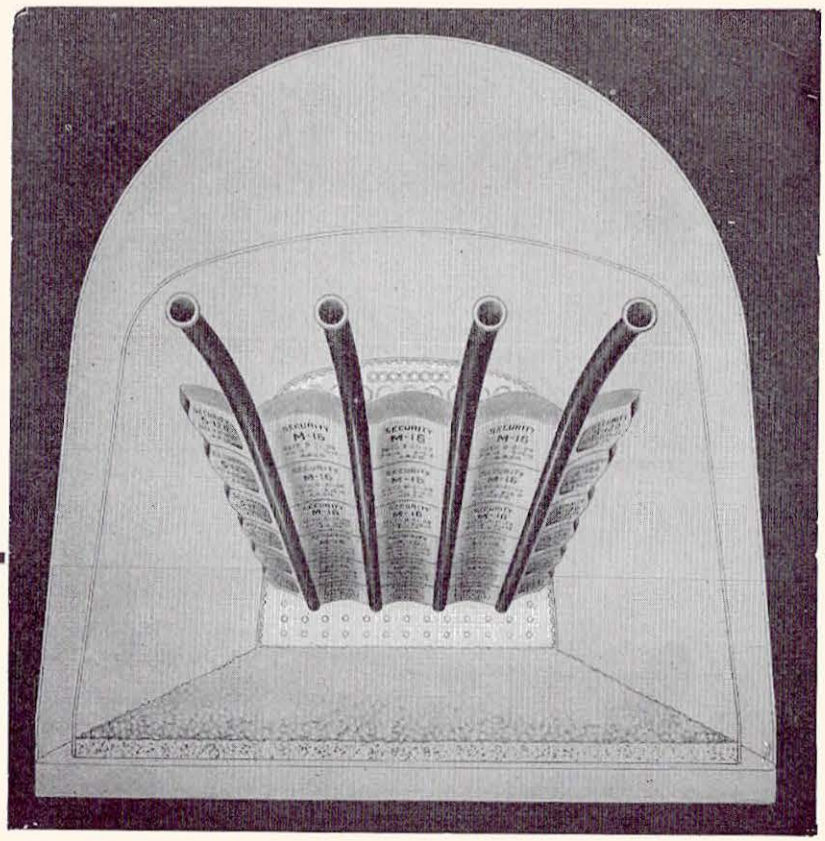
ONLY A CORRECT ARCH CAN GIVE FULL ECONOMY

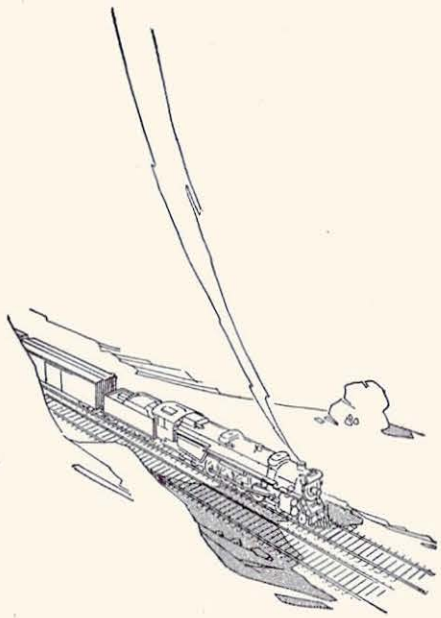


An important phase of the American Arch Company leadership is the determination to leave no stone unturned to supply the railroads with the most effective locomotive Brick Arches.

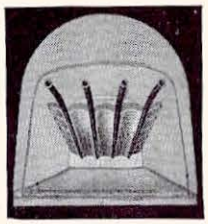
While Security Arch Brick is highly standardized for economy and ease of handling, each class of locomotive calls for its individual design of brick arch.

For new locomotives the brick arch is designed to suit. Where power has been modernized, be sure that it too gets the advantage of a Security Brick Arch designed to suit its needs.

Our engineers will gladly cooperate with you.



There's More to SECURITY ARCHES *Than Just Brick*



HARBISON-WALKER REFRACTORIES CO.

Refractory Specialists

AMERICAN ARCH CO.
INCORPORATED

Locomotive Combustion Specialists » » »

total was scored by the newly established Shenandoah National Park, Virginia, dedicated on July 3 of the current year, which was visited by 694,098. Great Smoky Mountains National Park, on the border of North Carolina and Tennessee, came second with 602,222 visitors. Acadia National Park, Maine, reported 340,393 and Mammoth Cave National Park, Kentucky, 57,775.

Leading the record for the parks of the West, Rocky Mountain National Park, Colorado, reports a total of 550,496. Yellowstone National Park, Wyoming, with 432,570 comes next on the list, with Yosemite National Park, California, closely following with a total of 431,192. Even Mount McKinley National Park, Alaska, reports 1,073 visitors, as compared with 877 visitors last year.

N. A. M. Educational Program on Economics and Government

The National Industrial Council, 11 West Forty-second street, N. Y.—an affiliate of the National Association of Manufacturers—has developed a comprehensive educational program on fundamental principles of economics and government, designed to reach the public in general, and industrial workers in particular. Aside from radio and newspaper material, of which a large program of releases is now being carried out, arrangements have also been made to furnish talking pictures to be shown to employees, in industrial plants.

The pictures are slides, equipped with attendant music and lectures, which give virtually the same effect as talking motion pictures—at much lower cost. Five such illustrated lectures have been prepared, on the following subjects:

1. Does machinery make jobs or destroy them?

2. How improve the American standard of living?

3. Men and machines.

4. The flood tide of taxes—Who pays them?

5. Is the Constitution outmoded and should it be junked?

These illustrated lectures are not blatant and one-sided propaganda (to judge from a showing of the one on whether machines make jobs or destroy them). The question of the harm done to the individual workman displaced by a machine is not passed by, but is frankly faced. And the economic theory which justifies the machine as a job-making instrumentality is set forth in language and with figures understandable to anyone—without any special pleading or partisan bias.

The National Industrial Council offers the projection machine and records for all five lectures, together with printed literature, to industrial plants for $125; or the records and literature alone for $25. Arrangements have been made whereby the Western Union Telegraph Company will supply the apparatus and an operator to deliver any one of the lectures for $5. E. T. Weir, chairman of the National Steel Corporation, is chairman of the Council directing this work.

Construction

Lehigh Valley-New York Central-Erie-Pennsylvania-New York, Chicago & St. Louis-South Buffalo-Baltimore & Ohio.—The New York Public Service Commission has approved a revised estimate of cost of $1,122,772, exclusive of land and property damages, for the elimination of the Tifft street crossing of these roads in Buffalo, N. Y. A general plan and detail plans for the elimination were also approved.

Missouri Pacific.—A contract for rebuilding this company's enginehouse at Osawatomie, Kan., which was recently largely destroyed by fire, has been awarded to the S. Patti Construction Company, Kansas City, Mo. As in the case of the old structure, the new enginehouse will consist of eighteen 110 ft. and 120 ft. stalls.

New York & Long Branch.—A contract has been given to the Brann & Stewart Company, Philadelphia, Pa., for the construction of a temporary double track runaround trestle, in connection with the reconstruction of Big Shark River bridge at Belmar-Avon, N. J., to cost between $30,000 and $35,000. See *Railway Age*, September 26, page 465.

Pennsylvania.—A contract has been awarded to James Stewart & Company for the installation of two additional escalators at Pennsylvania Station, New York. With the completion of this contract, seven escalators will have been provided there for passengers. These two Otis escalators are to be placed in the center of the grand stairway leading from the main Seventh avenue corridor; they are of the reversible type. The capacity of each will be 6,000 persons an hour.

St. Louis, Mo.—The City of St. Louis, through the Board of Public Service, has entered into a contract with M. H. Doyne, formerly a member of the engineering firm of C. E. Smith & Company, St. Louis, to take over the engineering work in connection with the construction of additional railroad approaches and other improvements for the Municipal bridge across the Mississippi river between St. Louis, Mo., and East St. Louis, Ill. The Board of Public Service has taken the position that a recent decision by the circuit court in connection with receivership proceedings against C. E. Smith & Company ordering the dissolution of this concern, has breached its contract with the city in relation to the designing and supervision of the work of constructing the new approaches etc., to the Municipal bridge, making it necessary for the city to make provision elsewhere for such work. The contract with Mr. Doyne is subject to approval by the Board of Estimate and Apportionment.

Western Pacific.—This road now has under construction on its main line near Pleasanton, Cal., a through-truss steel bridge, 135 ft. long, on concrete abutments, which will replace an existing 210-ft. timber trestle.

Equipment and Supplies

IRON & STEEL

The Southern Pacific has ordered 55,162 tons of rails, placing 29,123 tons with the Columbia Steel Company, 16,348 tons with the Bethlehem Steel Company and 9,691 tons with the Colorado Fuel & Iron Company. Part of the rails will be used in preparing the San Francisco-Los Angeles line for streamlined train operation and for improving 50 miles of the Texas & New Orleans.

FREIGHT CARS

The Chicago, Rock Island & Pacific is inquiring for 350 automobile box cars, equipped with Evans auto loaders.

The Cincinnati, New Orleans & Texas Pacific has ordered 10 Koppel, all steel air dump cars of 30-yd. capacity from the Pressed Steel Car Company. Inquiry for this equipment was reported in the *Railway Age* of September 26.

PASSENGER CARS

The Seaboard Air Line is inquiring for six trailer cars.

The City of Philadelphia, Pa., Department of City Transit, is preparing specifications for the purchase of 60 subway cars.

The Board of Transportation, City of New York, will hold a public hearing on October 23, to consider proposed terms and conditions of a draft form of contract for the purchase of steel passenger cars for subway service. Inquiries are expected to be issued shortly for about 200 cars.

LOCOMOTIVES

The Boston & Maine has placed orders totalling over $1,000,000 for 10 new large passenger and freight locomotives. Five of the new locomotives, each costing about $125,000, will be of the Mountain type and so designed that, while they are primarily intended for use in freight service, they will be so fast that they can be used for speedy passenger service with long trains. These locomotives which have been ordered from the Baldwin Locomotive Works will be 105 ft. long and weigh over 396 tons each. The tenders will have a capacity for 20,000 gallons of water and 21 tons of coal. The other 5 locomotives are of the Pacific type and will be built for speeds as high as 90 m.p.h. They will be used on fast trains such as The Minute Man, The Pine Tree Limited, The Kennebec Limited, The Cannonball and The Gull. These locomotives will cost about $100,000 each and they have been ordered from the Lima Locomotive Works. They will have driving wheels 80 in. in diameter and the tenders are to be equipped

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Elesco Feed Water Heaters applied to new CANADIAN PACIFIC LOCOMOTIVES

The five new semi-streamlined locomotives for the Canadian Pacific Railway are equipped with Elesco feed water heaters.

The first of this class of locomotives was delivered July 27th. Aside from being attractive, they are capable in every way of developing all the speed and power that can be used in up-to-date railroading.

Elesco Feed Water Heaters Increase Sustained Boiler Capacity

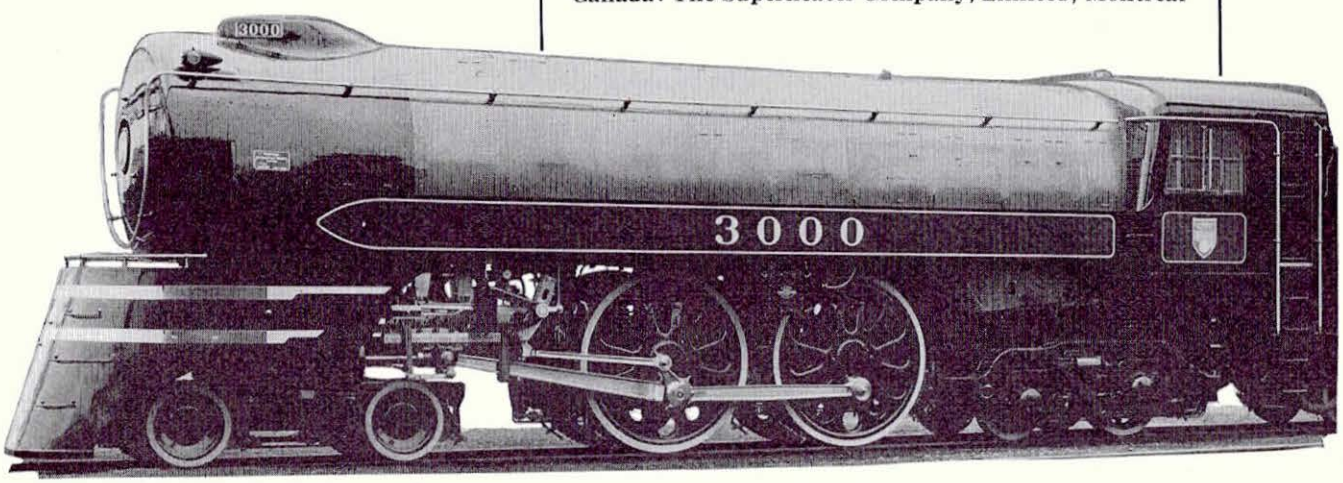
ELESCO

Superheaters
Feed Water Heaters
Exhaust Steam Injectors
Tangential Steam Dryers
Superheated Steam Pyrometers
American Throttles

A-1094

THE SUPERHEATER COMPANY

Representative of American Throttle Company, Inc.
60 East 42nd Street, New York
Peoples Gas Building, Chicago
Canada: The Superheater Company, Limited, Montreal



with an auxiliary or booster engine used as an aid to smooth starting of long and heavy trains. Delivery of the new passenger locomotive is expected in December and the freight locomotives will be delivered the first part of the year and will go into service as fast as they arrive. Both the freight and passenger locomotives will be equipped with an automatic device which records on a tape the speed at which the engine is operated all the time it is moving. They will also be equipped with mechanical stokers.

Supply Trade

W. C. Straub, manager of the New York branch office of the **Chicago Pneumatic Tool Company,** New York, has been appointed assistant to the executive vice-president, and has been succeeded by **A. D. Stem.**

Charles E. Bell, traffic and transportation analyst, who was executive and traffic assistant to the Federal Co-ordinator of Transportation, has re-entered private practice with offices in the Investment building, Washington, D. C.

The **Dearborn Chemical Company** is completing an extension to its main manufacturing plant, located in the Central Manufacturing District, Chicago, which will result in a 16 per cent increase in floor space. This, the third major addition in 12 years, will be used for a modern machine shop and new equipment for increased business. At the same time the laboratories have been remodeled and new equipment installed. Factory offices have been remodeled and air conditioned.

Raymond E. Zahnizer who has been in the service of the **Jones & Laughlin Steel Corporation** since 1912 and for the past 10 years connected with its New York district sales office, has been appointed assistant manager of sales, tin mill products, to succeed William Miller who was recently appointed manager of sales, sheet and strip mill products. **Harold L. Dublin,** formerly district sales manager of Follansbee Brothers, at Cleveland, Ohio, who had been with that company for 24 years has joined the Cleveland office of the Jones & Laughlin Steel Corporation to handle the sale of sheet and strip in that territory.

Frank P. McEwen, formerly southern sales manager of the Oliver Iron & Steel Corp., has been appointed assistant manager of sales, with headquarters at Cleveland, Ohio, of the **Upson division** of **Republic Steel Corp.** This division is concerned with the manufacture and sale of bolts and nuts. Mr. McEwen was born at Nashville, Tenn., and his first connection was with the Nashville, Chattanooga & St. Louis in the freight department. He left there in 1912 to become commercial agent in charge of solicitation of the Clinchfield Railroad. In April 1917, he enlisted in the Army and was soon commissioned first lieutenant in the 30th Division of the 115th

Frank P. McEwen

Field Artillery. After spending fourteen months in France, he returned to the Clinchfield Railroad as general western agent. In 1928, he was appointed district sales manager of the Oliver Iron & Steel Corp., and remained with that company until his recent appointment with the Republic Steel Corp.

The name of **Koppers Gas and Coke Company,** Pittsburgh, Pa., has been changed to **Koppers Company.** Three subsidiary companies to become divisions of the parent company, are: The Koppers Construction Company, which becomes the Engineering and Construction Division; Koppers Products Company, which becomes the Tar and Chemical Division, and the Bartlett Hayward Company, which becomes the Bartlett Hayward Division. The Western Gas Division of the Koppers Construction Company becomes a division of Koppers Company as does the American Hammered Piston Ring Division of The Bartlett Hayward Company. The Maryland Drydock Company, The White Tar Company of New Jersey, Inc., and The Wood Preserving Corporation remain as subsidiaries of Koppers Company. Officers of the former subsidiaries will become officers of Koppers Company. To avoid similarity of titles, the name of The Koppers Company, parent company of Koppers Company, will be changed to Koppers United Company.

OBITUARY

Frank N. Grigg, formerly in the railway supply business, died on September 22, at San Diego, Cal., where he went several years ago because of ill health. Mr. Grigg was born 62 years ago; he served on the Chesapeake & Ohio and later with the Adams & Westlake Company. Before going to California, Mr. Grigg was in the railway supply business in Washington, D. C., and among other companies he represented the Morton Manufacturing Company, the Tuco Products Company, the Heywood-Wakefield Company and the Harlan & Hollingsworth Car Company.

Financial

ATCHISON, TOPEKA & SANTA FE.—*Abandonment.*—The Gulf, Colorado & Santa Fe has applied to the Interstate Commerce Commission for authority to abandon its line from Miles, Tex., to Paint Rock, 16.7 miles.

ATCHISON, TOPEKA & SANTA FE.—*Acquisition.*—Examiner R. R. Hendon of the Interstate Commerce Commission has recommended in a proposed report that the commission authorize the acquisition by the Santa Fe Trail Stages, Inc., of control of the Central Arizona Transportation Lines, Inc., and the Arizona-Utah Stages, Inc., by purchase of capital stock.

ATLANTIC & YADKIN.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a branch line extending from Stokesdale, N. C., to Madison, 11.3 miles.

BLISSFIELD.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Adrian, Mich., to Riga, 12.5 miles.

CHICAGO, BURLINGTON & QUINCY.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon two segments of a branch line extending from Sedan, Ia., to Novinger, Mo., 31.3 miles and from South Gifford, Mo., to Elmer, 4.7 miles.

CHICAGO, ROCK ISLAND & PACIFIC.—*Abandonment.*—The Interstate Commerce Commission has authorized the trustees of this company to abandon a branch line of the Choctaw, Oklahoma & Gulf extending from Ingersoll, Okla., to Anthony, Kans., 32.8 miles.

DULUTH, MISSABE & NORTHERN.—*Abandonment.*—The Interstate Commerce Commission has authorized this company and the Duluth & Iron Range to abandon a branch extending from Rollings, Minn., to a point near Waldo Station, 15 miles.

HICKORY VALLEY.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon that part of its line extending from Endeavor, Pa., to McDonalds, 2.5 miles.

ILLINOIS CENTRAL.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a part of a branch line extending from Hedrick, Ind., to West Lebanon, 6 miles.

MAINE CENTRAL.—*Abandonment.*—The Interstate Commerce Commission has authorized this company, the Rumford Falls & Rangeley Lakes, and the Portland & Rumford Falls to abandon the line of the second named extending from Rumford, Me., northerly to Oquossoc, 36 miles. The Maine Central has also been authorized to abandon a line from Oquossoc to Kennebago, 10.8 miles.

MINNEAPOLIS, ST. PAUL & SAULTE STE. MARIE.—*Wisconsin Central Equipment Trust.*—The Interstate Commerce Com-

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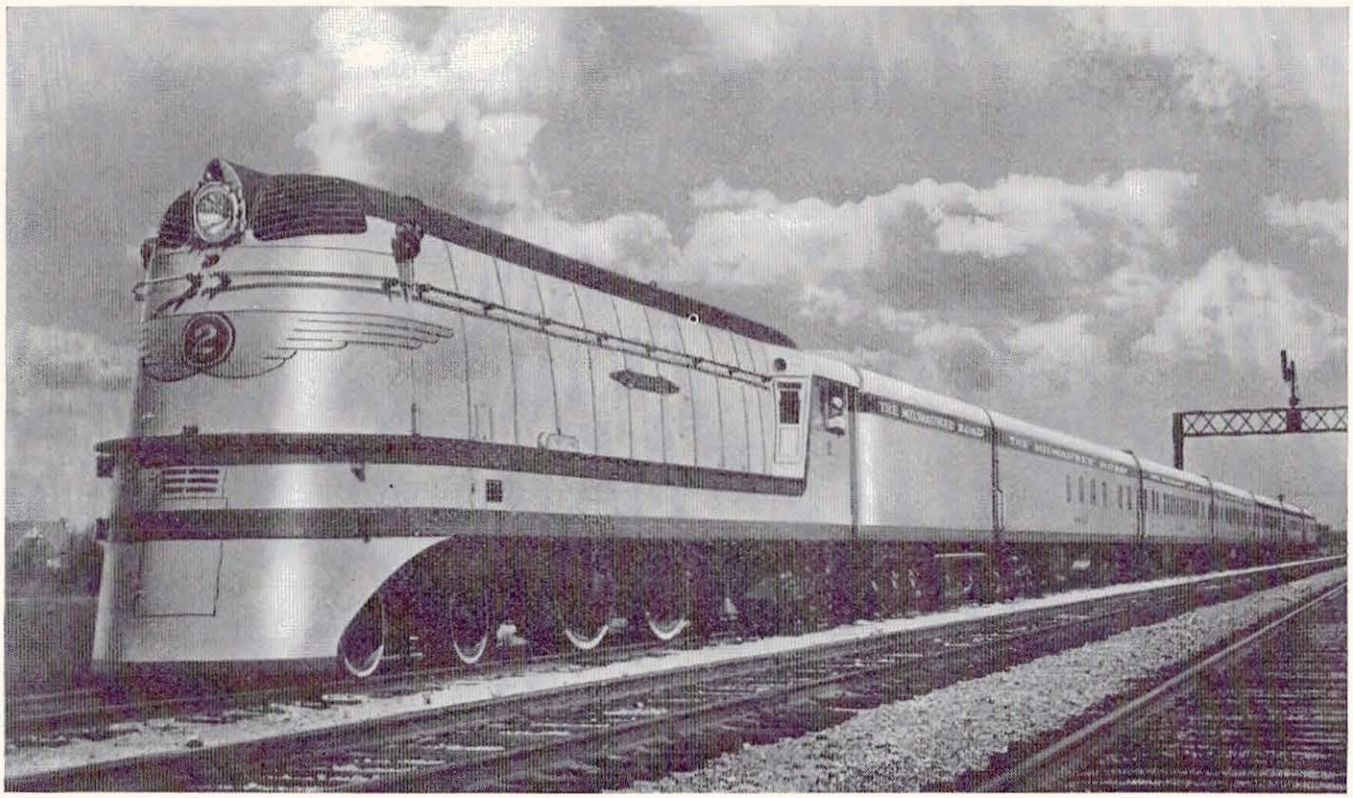

AN AMAZING RECORD

RECORD of paying passengers traveling on the Hiawatha since its inauguration:

May 29, 30, 31, 1935	1,091
June	16,564
July	20,237
August	25,003
September	18,689
October	16,678
November	16,953
December	25,175
January, 1936	23,412
February	18,533
March	17,688
April	18,517
May	17,308
June	24,357
July	29,261
August	34,119
September 1-24	22,535
Total	346,120

One might expect the increase in traffic during June, July, and August, 1935, when the train was new. But compare these months with June, July, and August, 1936, one year later. Truly, an amazing record.

Alco

AMERICAN LOCOMOTIVE COMPANY
30 CHURCH STREET, NEW YORK CITY

mission has authorized the Wisconsin Central and its receiver to assume liability for $350,000 of 3½ per cent equipment trust certificates, series A, maturing in installments 1937-46. The issue has been sold at par plus a premium of $623 to the highest bidder—Thrall West & Co. and Piper, Jaffray & Hopwood of Minneapolis, Minn.

MISSOURI PACIFIC.—*Fees of Special Counsel.*—Ernest A. Green and Jerome N. Frank, special counsel of the trustee of this company in pressing its claims against Terminal Shares, Inc., have been granted compensation of $9,000 each for their services, without prejudice to further compensation on further investigation. Mr. Green suggested a fee of $26,688 for himself and his associates and, while Mr. Frank made no suggestion as to his compensation, a witness thought $300 a day would be about right for this kind of legal work.

NEW YORK, NEW HAVEN & HARTFORD.—*Claims.*—Claims against this company which cover securities aggregating $288,490,550 in principal amount were reported to the federal court at New Haven on October 9 by Howard S. Palmer, president of the debtor company, as having been found correct. They will be allowed by Judge Carroll C. Hincks, in the absence of any objections on or before December 10, 1936. This represents the first group of claims presented for allowance in the New Haven's reorganization proceedings under Section 77 of the National Bankruptcy Act. The claims covering securities were filed on behalf of the individual holders by mortgage trustees and other representatives designated by the court. The report states that out of the total of $288,490,550, claims totaling only $436,500 have been filed by individual holders, and the court's allowance of the blanket claims will be "in lieu of the allowance of claims filed by owners or holders of the same securities," the court order adding that "it shall not, however, constitute an adjudication of the extent of any lien claimed."

PENNSYLVANIA.—*Abandonment.*—The Interstate Commerce Commission has authorized this company and the Philadelphia, Baltimore & Washington to abandon a part of a branch line extending from a point near Landenberg, Pa., to a point north of Thompson, Del., 3.4 miles.

PUGET SOUND & CASCADE.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon that portion of its line extending from a point about one mile north of Mt. Vernon, Wash., northerly to Burlington, 3.8 miles.

READING.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a portion of its Tamaqua, Hazleton & Northern branch extending from a point near the crossing with the state (Pennsylvania) highway No. 29 to the end of the branch, 4.4 miles.

SIERRA RAILROAD.—*Acquisition.*—This company has applied to the Interstate Commerce Commission for authority to purchase and operate the property of the Sierra Railway and to issue securities in connection with a plan of reorganization.

SOUTHERN PACIFIC.—*Acquisition.*—This company has applied to the Interstate Commerce Commission for authority to purchase the Chowchilla branch of the Visalia Electric, from Chowchilla, Calif., to Dairyland, 10.23 miles, for $104,844.

UNION PACIFIC.—*Bonds.*—The Interstate Commerce Commission has authorized this company to issue $20,000,000 of 34-year 3½ per cent debenture bonds to be sold to Kuhn, Loeb & Co., at 97½ (making the interest cost 3.62 per cent) and the proceeds used to redeem outstanding 4 per cent bonds—effecting a net saving in interest costs of $2,520,000.

Average Prices of Stocks and Bonds

	Oct. 13	Last week	Last year
Average price of 20 representative railway stocks..	59.93	57.78	35.09
Average price of 20 representative railway bonds..	84.93	84.46	71.50

Dividends Declared

Chesapeake & Ohio.—6½ Per Cent Preferred, $3.25, semi-annually, payable January 1 to holders of record December 31.

Morris & Essex Extension Railroad.—$2.00, semi-annually, payable November 2 to holders of record October 15.

Northern Railroad of New Hampshire.—$1.50, quarterly, payable October 31 to holders of record October 12.

Railway Officers

OPERATING

J. W. Mode, assistant superintendent on the Ft. Worth & Denver City, with headquarters at Amarillo, Tex., has been promoted to superintendent with the same headquarters.

A. L. Hunt, assistant trainmaster on the Williamsport division of the Pennsylvania, with headquarters at Williamsport, Pa., has been transferred to the Columbus division, with headquarters at Richmond, Ind., to succeed **Claude Crawford,** transferred.

TRAFFIC

L. P. Nash, assistant general freight agent on the St. Louis-San Francisco, with headquarters at Birmingham, Ala., has been transferred to Atlanta, Ga.

F. Miranda, general agent for the Missouri Pacific at Mexico, D. F., has been appointed executive representative at the same point.

F. W. Ditman, commercial agent for the Chesapeake & Ohio at Detroit, Mich., has been promoted to general agent at the same point, to succeed **C. A. Ulrich,** who has retired.

Walter H. Browne, Canadian agent for the Delaware, Lackawanna & Western, with headquarters at Toronto, Ont., has been appointed foreign freight agent, with headquarters at New York, succeeding **Henry G. E. Pansius,** deceased.

Robert S. Caird, assistant manager of tours of the Chicago, Burlington & Quincy, has been appointed manager of tours, with headquarters as before at Chicago, to succeed **Joseph G. Delaplaine,** who retired on October 1 after 53 years of railroad service.

E. T. Parks, chief clerk in the divisions department of the Chicago, Burlington & Quincy, has been appointed assistant general freight agent, with headquarters as before at Chicago, in which capacity he will handle matters relating to divisions.

J. G. Simpson has been appointed assistant general freight agent on the Denver & Rio Grande Western, with headquarters at Denver, Colo., to succeed **T. K. Earley,** whose appointment as general freight agent was reported in the *Railway Age* of October 10.

H. Stockdale, district freight agent for the Canadian Pacific, at Kansas City, Mo., has been appointed general eastern freight agent at New York, to succeed **A. L. Preston,** who has been granted a leave of absence until December 31, on which date he will retire.

L. C. Bostwick, general agent for the Wabash, with jurisdiction over both the freight and passenger departments at New York, has been appointed Eastern traffic manager, having jurisdiction over Boston, Mass., Philadelphia, Pa., and New York, with headquarters at New York.

W. L. English, industrial and agricultural commissioner of the St. Louis-San Francisco, has been appointed assistant to the chief traffic officer, effective October 15, with headquarters as before at Springfield, Mo., and his former position has been abolished. Mr. English will have supervision over agricultural development and refrigeration, in addition to such special assignments as may be given him from time to time.

Albert M. Reinhardt, assistant general freight agent on the Atchison, Topeka & Santa Fe at San Francisco, Cal., who has been promoted to general freight agent with the same headquarters, as reported in the *Railway Age* of September 26, was born on December 1, 1878, at Lawrence, Kan. He entered railway service in December, 1895, with the Southern California Railway (now part of the A. T. & S. F.), serving successively as a clerk, relief agent, agent and operator on the Los Angeles division. In 1899, he was appointed a bill clerk at San Diego, Cal., and from 1901 to 1903, he served as agent at Hanford, Cal. At the end of this period he became identified with the auditors office at Los Angeles, Cal., and in 1906 he was appointed chief clerk in the division freight office at the same point. Two years later Mr. Reinhardt was appointed chief clerk in the general freight office at Los Angeles, and in 1913 he was advanced to assistant general freight agent, with the same headquarters. In 1920 he was trans-

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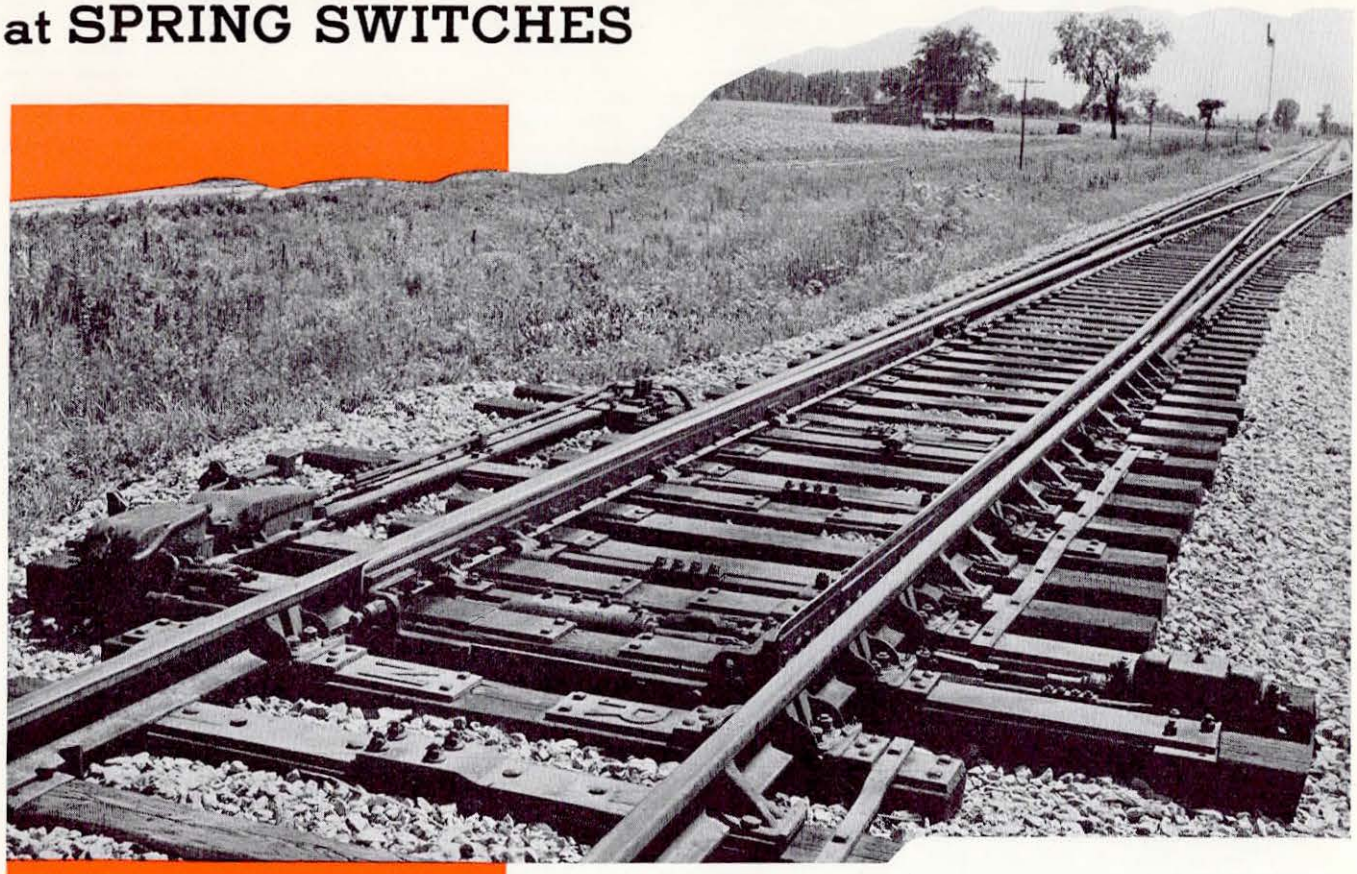
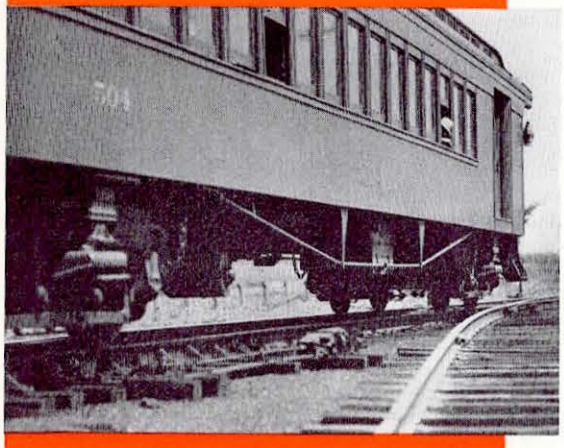
ELIMINATE SLOW ORDERS

at SPRING SWITCHES





TODAY'S schedules do not permit continuation of slow orders at spring switches if competition is to be met. Eliminate these slow orders by installing "Union" Style S-2 Mechanical Facing Point Locks, which permit maintenance of full speed, with safety, for facing point moves. Also consider the resultant savings! One road is saving 246 per cent of the cost of installation each year from the item of fuel only! » » » »

Our nearest district office will be glad to furnish mechanical and operating details. » » »

1881 1936

1132

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SWISSVALE, PA.

NEW YORK MONTREAL CHICAGO ST. LOUIS SAN FRANCISCO

ferred to San Francisco, where he was located at the time of his recent appoint-

Albert M. Reinhardt

ment as general freight agent, effective September 1.

Charles J. Sayles, who has been appointed freight traffic manager in charge of the rate department of the Wabash, with headquarters at St. Louis, Mo., has been identified with the Wabash for 32 years. Mr. Sayles was born on May 31, 1878, at Mt. Pleasant, Iowa, and first entered railway service on May 30, 1899, as a ticket clerk on the Union Pacific at Council Bluffs, Iowa. Five years later Mr. Sayles entered the service of the Wabash as assistant passenger and ticket agent at Omaha, Neb. In February, 1905, he was appointed city passenger agent at Council Bluffs, and from June, 1905, to October, 1908, he served as city freight and passenger agent at the same point. At the end of this period, Mr. Sayles be-

Charles J. Sayles

came contracting agent at Omaha, holding this position until April, 1912, when he was made commercial agent at Hannibal, Mo. In July of the following year he was sent to St. Louis as chief clerk in the general traffic department. After seven years in this capacity he was advanced to assistant general freight agent, with the same headquarters. From January, 1928, until the time of his appointment as freight traffic manager, effective September 16, Mr. Sayles held the position of general freight agent at St. Louis.

ENGINEERING AND SIGNALING

Mark J. J. Harrison, whose appointment as supervisor of scales and weighing of the Pennsylvania, with headquarters at Altoona, Pa., was reported in the *Railway Age* of October 3, was born on March 12, 1893, at Wellsboro, Pa. Mr. Harrison was graduated from Rensselaer Polytechnic Institute in 1913, with a degree in civil engineering. He entered railroad service on July 15, 1920, with the Pennsylvania as general scale inspector, western region, at Chicago, Ill., which position he held until his recent appointment as supervisor of scales and weighing. Mr. Harrison became a member of the American Railway Engineering Association in 1925. He has been a member of the A. R. E. A. committee on yards and terminals since 1925, serving as vice-chairman of this committee from 1930 to 1933, and has been chairman since the latter year. He served as chairman of its subcommittee on scales from 1925 through the 1933 convention. Mr. Harrison has been a member of the A. R. E. A. committee on standardization and of the special committee on clearances since 1933.

Alonzo W. Epright, supervisor of scales and weighing of the Pennsylvania, with headquarters at Altoona, Pa., was retired from active duty on September 30, after 45 years of service with the railroad, as reported in the *Railway Age* of October 3. Mr. Epright entered the service of the Pennsylvania on July 12, 1891, in the mechanical department and, after several years as a gang foreman, was promoted to foreman of the tool department on June 6, 1896. On July 1, 1901, he was promoted to general scale inspector of the Pennsylvania lines east of Pittsburgh and Erie, Pa., which position he held until May 1, 1920, when he was promoted to supervisor of scales and weighing of the Pennsylvania system. Throughout his long career with the railroad, Mr. Epright was closely associated with the design, manufacture, installation and maintenance of all types of scales used by the road. As far back as 1900 he organized the scale manufacturing department at its Juniata shops, Altoona, and during subsequent years he was not only largely responsible for the development of many important improvements in scale design, but also invented numerous features of weighing equipment. Mr. Epright is a member of the Committee on Weighing of the Traffic Department of the Association of American Railroads, and for many years was connected with the American Railway Association as chairman of its Committee on Standards, which, under his direction developed the first specifications for track scales in America. He was also chairman of the so-called Aishton Committee, which later revised these specifications, which were subsequently adopted by the American Railway Association, the National Bureau of Standards, the Interstate Commerce Commission, and the Scale and Balance Manufacturers' Association. Mr. Epright has also long been connected with the American Railway Engineering Association and since 1921 has been a member of its Committee on Yards and Terminals.

MECHANICAL

W. R. Davis, assistant master mechanic of the Philadelphia division of the Pennsylvania, with headquarters at Harrisburg, Pa., has been promoted to master mechanic of the Chicago Terminal division, succeeding **C. O. Shull,** who has been transferred to the Philadelphia Terminal division, Philadelphia, Pa., to replace **H. L. Nancarrow,** whose appointment as superintendent of the Logansport division was announced in the *Railway Age* of October 3.

PURCHASES AND STORES

A. W. Hix has been appointed to the newly created position of assistant to the chief purchasing and stores officer of the Chesapeake & Ohio, the New York, Chicago & St. Louis and the Pere Marquette, with headquarters at Cleveland, Ohio.

OBITUARY

T. W. Wigton, assistant electrical engineer of the Chicago, Burlington & Quincy, died at his home at Aurora, Ill., on October 5 of pneumonia.

P. J. Flynn, who retired in 1929 as vice-president in charge of traffic of the Delaware, Lackawanna & Western, with headquarters at New York, died at his home in Orange, N. J., on October 12, following a short illness. Mr. Flynn was born at Granville, N. Y., on March 12, 1856, and entered railroad service in 1870 with the Philadelphia & Reading (now Reading). He subsequently served with the East Broad Top, the Columbus & Toledo (now Chesapeake & Ohio) and the Union Pacific. In 1880 he went with the Atchison, Topeka & Santa Fe, serving successively as express and ticket clerk at Trinidad, Col.; general agent at Salt Lake City, Utah; Cincinnati, Ohio, and Denver, Col.; general agent and assistant superintendent in charge of the Denver terminals and of the Denver Circle railway, affiliate of the Santa Fe. Mr. Flynn was appointed general western freight and passenger agent of the Missouri Pacific at Denver in August, 1889, and in 1891 he became general freight and passenger agent of the Rio Grande-Midland route, composed of the Colorado Midland, Denver & Rio Grande and the Rio Grande Western lines. The Colorado-Utah Traffic Association named Mr. Flynn commissioner in April, 1891, and later he became chairman of the Colorado Passenger Association, in which position he continued until 1899, when he entered the service of the Lackawanna as general freight agent. He served as freight traffic manager of the Lackawanna from 1903 until 1911 and was elected vice-president in charge of traffic in November, 1911, holding this position until July, 1918. During government control of railroads Mr. Flynn acted as secretary and treasurer of the corporation. On February 20, 1920, he resumed the vice-presidency of traffic, from which position he retired on April 15, 1929.

High Efficiency *with* Low Maintenance

THE wear-resisting properties of HUNT-SPILLER *Air Furnace* GUN IRON are helping many railroads to maintain maximum locomotive efficiency for an unusual low maintenance cost.

Performance records show that locomotives equipped with H S G I Wearing Parts spend less time in the roundhouse—make more trips per month—handle their trains better and consume less fuel.

Maintenance records and inspection reports prove that these locomotives require less roundhouse attention and cost less to overhaul.

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Cylinder Bushings
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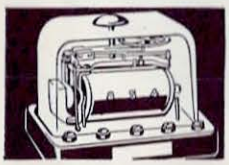
A recovery check list for railroads



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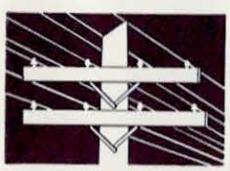

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CELOTEX

GETS THE CALL WITH RAILWAYS

SAYS THE RAILWAY PURCHASING AGENT

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"*First,* it's very light, reducing dead weight, increasing profits per load.

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"*Fifth,* it is extremely durable. Permanently protected by the Ferox Process (patented) against destruction by Dry Rot, Fungus Growths and Termites.

"Add up these vital advantages and it's mighty easy to see why Celotex is TOPS with railways!"

The Celotex Corporation's Railway Engineers will be glad to help you solve any problem of refrigerator or building insulation—accurately and economically. No obligation—just write to

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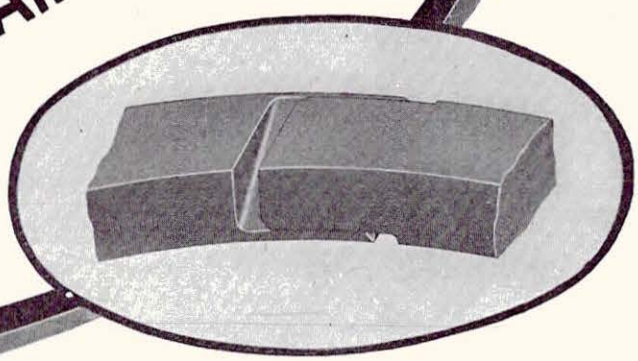
IMPROVED LAP JOINT RING for Steam Driven Air Compressors



THIS type of joint, used successfully for many years on bronze packing rings for Triple valves, is now available, in IMPROVED FORM, for steam-driven Air Compressor piston rings, with the following advantages:

MAINTENANCE OF SEAL against the cylinder wall and in the groove during the entire life of the ring is assured by the LAP JOINT of distinctive design and sturdy construction.

UNIFORM WALL PRESSURE results from specialized manufacturing processes that produce a single-cast ring of even grain texture, free from shrinkage flaws.

TRUE CIRCULARITY is assured by precision machining of every ring individually.

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STRONG TOUGH
ANTI-FRICTIONAL EASILY MACHINED

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STEAM COUPLERS ARA Standard
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Reduced rates make efficiency imperative. Not on rolling stock alone. But buildings too! And in moving freight from shed to car . . . or from car to shed, the type of doors used in the opening can "make or break" the step-up in efficiency necessary at this point. Either by slowing up operations or burdening maintenance charges with frequent repairs. Freedom from these shortcoming is why Kinnear Rolling Doors have had favor with Railroad Men for so many years. They open UPWARD, easily, conveniently and quickly . . . out of the way of damaging blows . . . saving floor and wall space. And they are built strong and durable enough to stand years of hard gruelling service. Installations throughout the country—big and small—tell a deserving story of "More Efficiency per D. O." from Kinnear Doors.

Consult us on all your door requirements, for Kinnear Doors are built in several UPWARD-ACTING types in wood or steel—for old or new buildings—manually or electrically operated—and for fire or service purposes. Would you like a Kinnear Catalog for your reference files? It's sent with no obligation.

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RAIL ANTI-CREEPER

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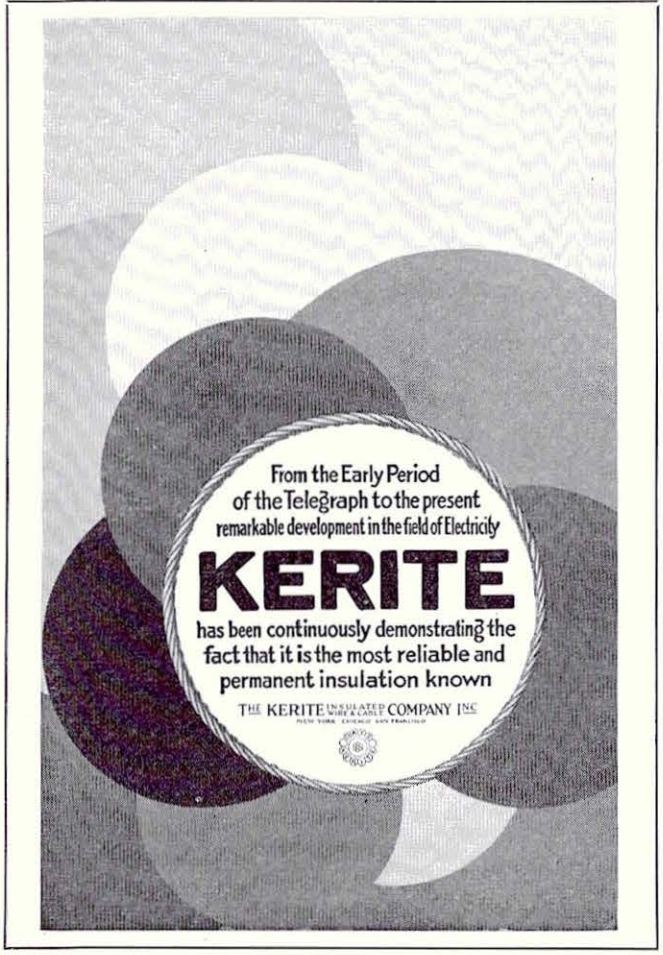
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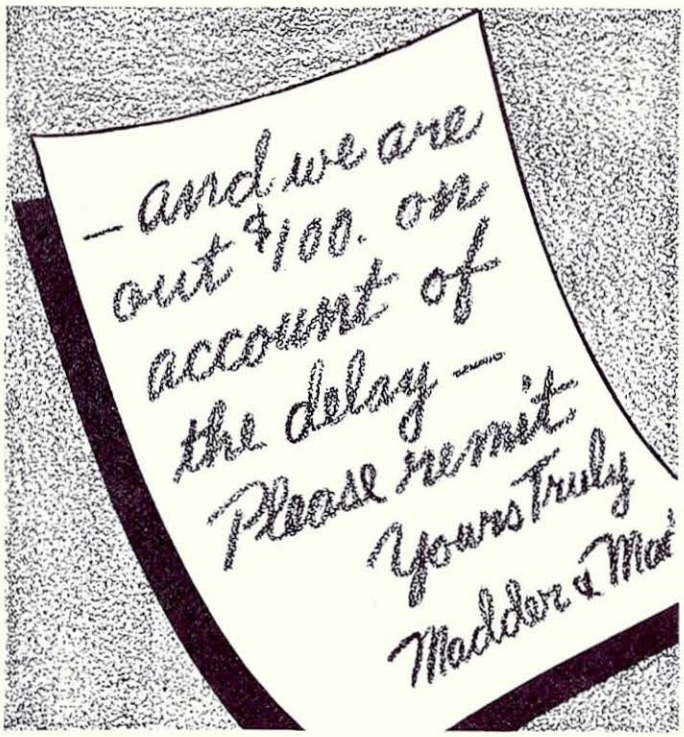

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by reducing HOT BOXES

A hot box always means expense to your road. Many of them develop into outright CLAIMS. You can eliminate, positively, every hot box caused by nicks, dents, scratches or other damage to the bearing lining. Many unprotected bearings receive injury *before being placed in service*, according to actual records of a large middle west railroad. Every such bearing is a potential hot box.

Macer Protectors are snapped on each broached bearing at the foundry. They give full protection to the soft babbitt lining up to the moment the bearing is placed in service. They last indefinitely and may be used again and again.

Prevent hot boxes, reduce claims—put Macers on your road as standard equipment NOW.

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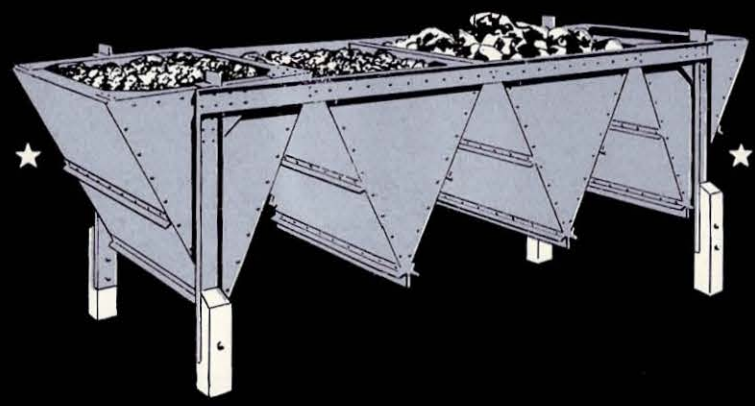

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THESE HOPPERS HAVE CORROSION LICKED

ALCOA

These are the four Aluminum Alloy test-hoppers which show exactly what high-sulphur coal does not do to Alcoa Aluminum.

In 1932 the hoppers were built of Alcoa Aluminum Alloys, bare and uncoated. As soon as they were installed in the open yard of the Aluminum Research Laboratories, at New Kensington, Pennsylvania, three of them were filled with coal. Regular Illinois, West Virginia, and Pennsylvania Bituminous of the highest sulphur content obtainable was used.

At the end of each year since then they have been emptied, examined for evidences of corrosion, and then refilled with new unleached coal of the same types, to continue the test.

Each year the report has been the same: *The corrosive effect of these coals on the Aluminum plate is uniformly negligible.*

This indicates that in at least twenty years of ordinary use corrosion will not affect the life of these plates.

For that reason, Alcoa Aluminum should triple the life of the ordinary hopper car, cutting both maintenance and replacement cost.

Resistance to corrosion is one advantage of Alcoa Aluminum that may serve you to your profit. Lightness is another. Would you like to have our engineers present an analysis of the whole picture, as a basis for discussion of your problems and of the part that Aluminum can play in solving them? Address ALUMINUM COMPANY OF AMERICA, 2178 Gulf Bldg., Pittsburgh, Pa.

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Thirty-three installations of automatic interlockings, ranging from $460 to $9,700, are netting a 68 per cent. annual return on the investment through reductions in maintenance and transportation expenses.

> "The installation of six automatic interlockings on the XYZ Railroad between A and B, 128.6 miles, eliminating stops at six crossings, has resulted in the average freight train running time being reduced 77 minutes or 14.6 per cent. per trip. The average freight train speed was increased from 14.7 to 17.1 m.p.h. or 16 per cent. While passenger train schedules have not yet been increased, it is now much easier to make up lost time, and there is a saving in fuel in passenger service of about 1,500 lb. per trip. Freight train loadings have been increased about 170 tons per train with no change in the power used. This increased train load is being handled in less time and with less fuel than formerly, bringing about a substantial saving.

"The large number of automatic interlockings installed in the past 12 years has shown the desirability of adopting simple signal arrangements at grade crossings, not only to replace stop signs and target signals, but also to replace interlockings as renewals become necessary and where traffic conditions warrant the simplified layout."

* From "Signal Protection for Light-Traffic Railroads Crossing at Grade," A.A.R. Signal Section Proceedings, Vol. XXXII.

UNION SWITCH & SIGNAL COMPANY
Swissvale, Pennsylvania

GENERAL RAILWAY SIGNAL COMPANY
Rochester, N. Y.

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HISTORY IN THE MAKING

Automatic interlockings protect railroad crossings and gauntlets in forty-one states, with Illinois reporting forty-one installations in service.